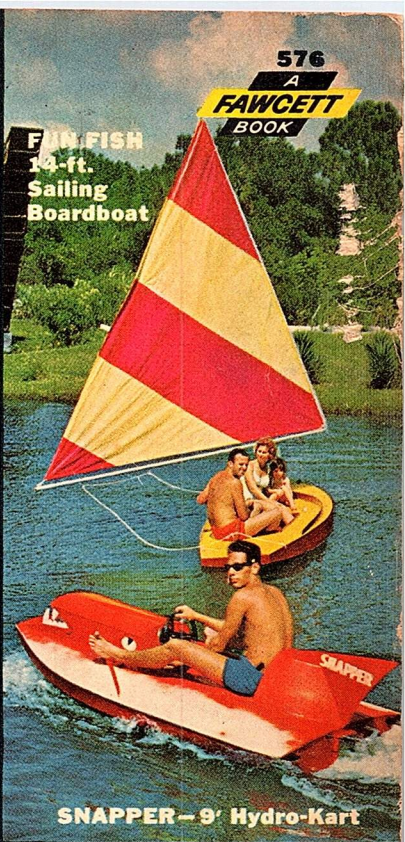


how to build **BOATS**

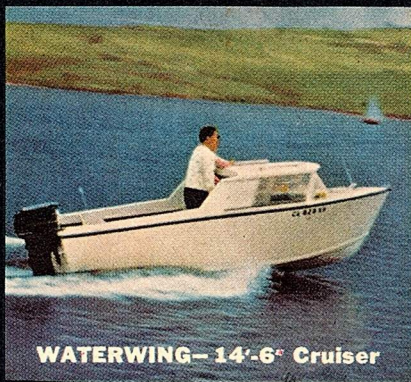
75¢

576
A
FAWCETT
BOOK

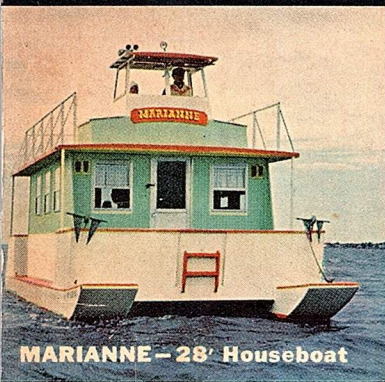
FISH FISH
14-ft.
Sailing
Boardboat



SNAPPER—9' Hydro-Kart



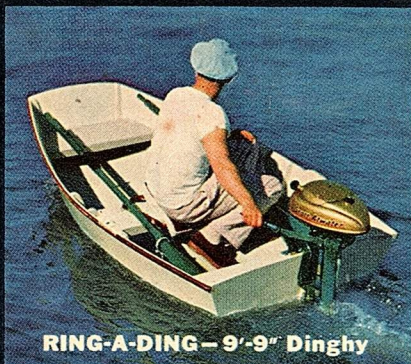
WATERWING—14'-6" Cruiser



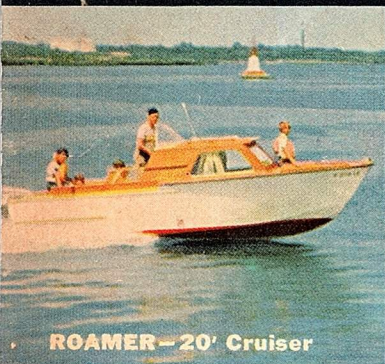
MARIANNE—28' Houseboat



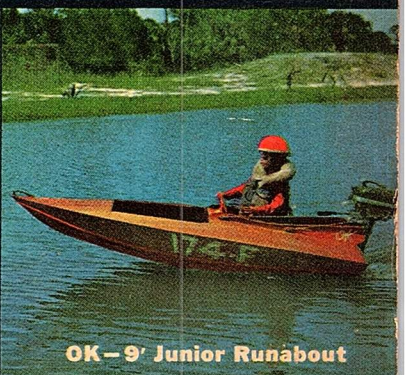
DREAMER—18' Cruiser



RING-A-DING—9'-9" Dinghy



ROAMER—20' Cruiser



OK—9' Junior Runabout



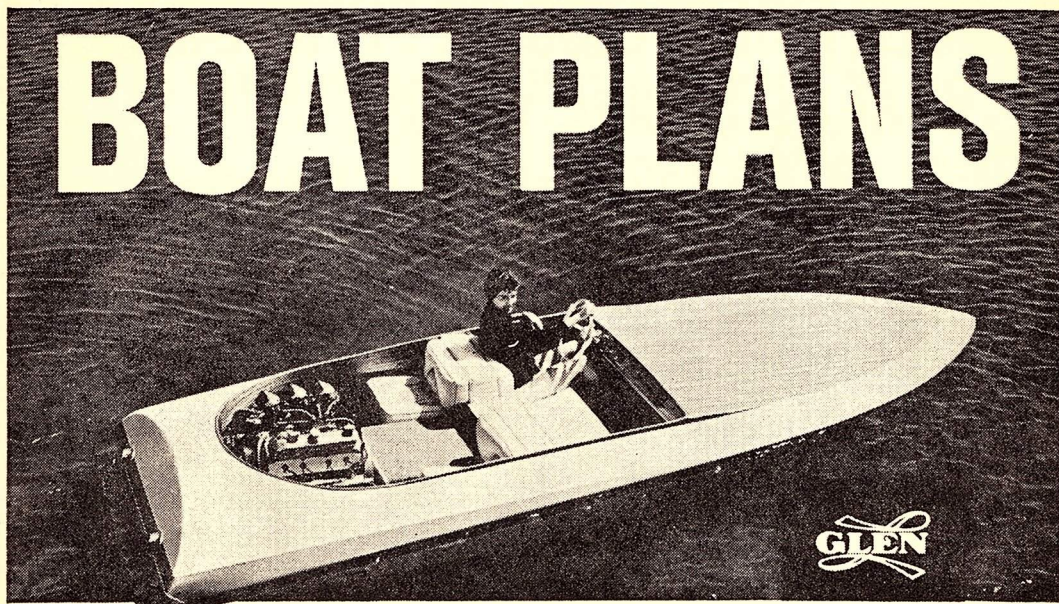
TAFFY—15'-6" Runabout



GUPPY—5' Sailer

**Schooners • Sloops • Sailboats • Kayaks
Cruisers • Runabouts • Dinghies**

BOAT PLANS



...full size patterns...frame kits

For 55 Popular Boat Designs, Including the "Ski-Tow" and "Aqua-Cat" Featured in This Issue

Every type and style of boat—Inboard, Outboard, Jet and Sail . . . dragsters, cruisers, ski boats, power and sail cats, dinghies, v-drives, a new 3-point hydro and many others ranging from a 7'6" Pee Wee to a 28' cabin cruiser!

And, with Glen L's detailed, easy-to-follow instructions, you can build your boat **right**, from the start, avoiding costly, time-consuming mistakes. All specially prepared for amateur builders, the large-scale plans, full-size patterns and frame kits include complete written and pictorial "step-by-step" instructions, plus full material listings.

TODAY . . . SEND FOR NEW, COMPLETE 1965 CATALOG ILLUSTRATING AND DESCRIBING ALL 55 BOATS ONLY 50¢

HELPFUL NEW HARDCOVER BOATING BOOKS

"INBOARD MOTOR INSTALLATIONS IN SMALL BOATS"



. . . A specialized 144-page hardcover book on the "How To" of inboard motor installations . . . automotive conversions and marine power plants. Complete with over 125 photos and illustrations. Defines the terminology, parts, how they are used and how to install them. **ONLY \$6.00 ppd.**



"BOAT BUILDING WITH PLYWOOD"

. . . A new 214-page hardcover book with valuable information for all amateur boat builders. Presented in simple, everyday language, each step is thoroughly explained **ONLY \$7.50 ppd.**

with written text, photos, and illustrations.

USE THIS HANDY COUPON

**Glen L Marine, 9152N Rosecrans
Bellflower, Calif.**

Gentlemen: Please RUSH the following:

.....Glen L Catalog @ 50¢

.....Boat Building with Plywood @
\$7.50 ppd.

.....Inboard Motor Installations
in Small Boats @ \$6.00 ppd.

Enclosed is \$.....

Name

Street Address

City State

GLEN L—9152N ROSECRANS, BELLFLOWER, CALIFORNIA

LUGER FIBERGLASS OR PLYWOOD BOAT KITS SAVE YOU MONEY!

18'-20'-30' CRUISERS-Fiberglass or Plywood

EASY TERMS

10% DOWN
3 FULL YEARS
TO PAY



22' CARIBBEAN has 12' cabin, full opening windshield, sliding side windows, full headroom. Sleeps 2 to 4 on full length bunks. 5' dinette converts to sleep 2 children. Galley provides for sink, stove, ice box. 22' CARIBBEAN has fully enclosed toilet room, forward deck hatch, molded fiberglass cabin top.



Two of many popular Luger cruisers! 18' BAHAMA & 20' ISLANDER sleep 2-4 on full length bunks, have folding dinette table, opening windshield, sliding side windows, forward deck hatch, airy spacious cabins, 1-piece molded fiberglass cabin tops. 18' BAHAMA has toilet & galley concealed under bunks. 20' ISLANDER has private toilet & built-in galley with sink, stove and ice box. BAHAMA & ISLANDER tow skiers with 30 to 40 HP outboards—speeds to nearly 40 MPH with largest outboards.

Anyone can assemble a Luger cruiser—from a Luger factory-molded fiberglass or Luger factory pre-assembled plywood cruiser kit. Use simple hand tools!

Thousands of Luger Sports Express Cruisers have been assembled by amateurs as easily as small boats. Every part and every section is precision cut, precision molded, pre-formed or pre-assembled at the factory. All you have to do is put them together, following simplified step-by-step instructions. If you can use ordinary hand tools, you can assemble your Luger kit skillfully and easily. Comparing the cost of a Luger kit

with a similar factory built cruiser... you'll find you save \$1000 to \$2500... and you will have all the pride and all the fun that goes with doing the work yourself! Luger cruisers are engineered for rugged salt or fresh water boating... Naval architect designs. Easy to maintain. Our convenient terms and low down payment make it easy to own the boat of your choice NOW. Rush coupon for complete FREE catalog!

18' & 20' Offshore RUNABOUTS BOAT KITS

Fiberglass or Plywood

18' & 20' cruiser size offshore runabouts are ideal for family pleasure cruising, offshore fishing, skiing, all-around use. Save \$1000 to \$1500. Easily trailered. Use inboard or outboard power. As easily assembled as small boats. Speeds to 30 MPH with 45 HP.



**MONEY BACK
GUARANTEE**

Low Down Payment

EASY TERMS
Take 3 Years to Pay!

Fiberglass Runabouts 14'-16'

Assemble entire boat in one evening! Save \$300 to \$500. Patented assembly method makes one-piece boat... three factory molded sections interlock and bond together into one piece boat with colors molded in. A scientific triumph of simplicity, speed and ease in construction offered exclusively by Luger. Paint brush and screwdriver are all you need to complete these kits.



LUGER—Your Complete One Stop Source

... for everything you need in boating. Luger offers over 50 boat kits... plus complete selections of accessories for each kit including trailers, marine paints, fiberglass supplies, boat hardware, lights, sails... inboard engines with outboard drive. Look to Luger for everything in boating.

12', 14', 16' pre-assembled plywood runabouts, utilities, ski models, convertibles, etc. Thousands assembled by experienced amateurs to equal factory finished boats.

Solid Comfort 22' Houseboat- Cruiser Kit

Handles and performs like a cruiser. V-bottom design. Planes with 45 HP engine to speeds of 20 MPH. Can be powered with inboard or outboard engines. Speeds to 30 MPH with 70-80 HP outboard. Tows skiers! Here you have all the space, comfort, safety and facilities of a houseboat plus cruiser advantages. 6 1/2 ft. headroom, galley, toilet, sundeck. Sleeps 4 or more in comfort. Easily assembled by anyone with ordinary hand tools.



FREE 48 Page Catalog in full color!

Rush coupon for new 48 page Luger Boat Kit and Accessories Catalog—FREE! See over 50 models of latest model boats from 12' runabouts to 22' cruisers. See how easily you can build the Luger kit of your choice! See low, Factory-to-You Prices and easy terms. See why Luger is one of the top ten names in boating.

Luger

BOAT KITS

Luger Industries, Inc., 9200 Access Road
Dept. AB-94 - Minneapolis 31, Minnesota

LUGER INDUSTRIES, INC.,
Makers of LUGER BOAT KITS
Dept. AB-94, Access Road
Minneapolis 31, Minnesota

Please rush new 48 page Full Color Luger Boat Kit Catalog... FREE! Include latest direct-from-factory price list.

Name _____

Address _____

City _____ Zone _____ State _____

HOW TO BUILD 20 BOATS

A FAWCETT BOOK • NUMBER 576
LARRY EISINGER • EDITOR-IN-CHIEF
GEORGE TILTON • MANAGING EDITOR
SILVIO LEMBO • ART EDITOR
NICK CARLUCCI • ASSOC. ART EDITOR

W. H. Fawcett, Jr. President
Roger Fawcett General Manager
Donald P. Hanson . . . Assistant General Manager
Gordon Fawcett Secretary-Treasurer
Roscoe Fawcett Circulation Director
Ralph Daigh Editorial Director
George H. Carl Production Director
Mortimer Berkowitz, Jr. . . . Advertising Director
Al Allard Art Director
Ralph Mattison Associate Art Director
Annette C. Packer Production Manager

RAY GILL EDITOR
Patricia Halpert Assistant Editor

STAFF ARTISTS

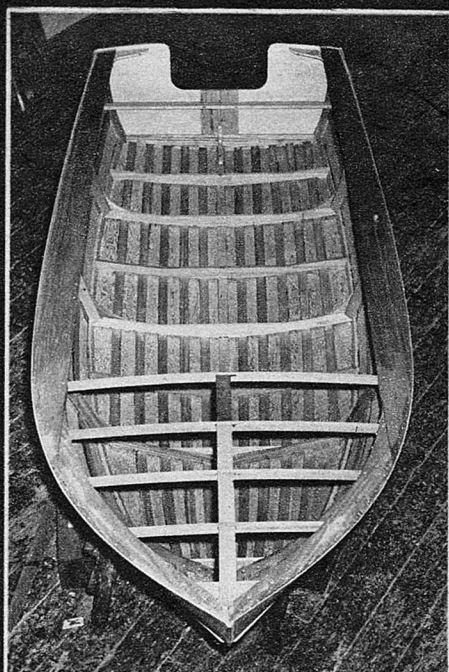
HAROLD E. PRICE ASSISTANT ART EDITOR
Mike Gaynor • John Selvaggio
Bob Vatter • Richard Rhodes
Bernie Clorman • Alex Santiago

Helene Finkel Production Editor
Stacey Winter Assistant Production Editor

HOW TO BUILD 20 BOATS, Fawcett Book 576, is published by Fawcett Publications, Inc., Greenwich, Conn. Editorial and Advertising Offices: 67 West 44th Street, New York, New York 10036. General Offices: Fawcett Building, Greenwich, Connecticut 06830. Printed in U.S.A. Copyright © 1964 by Fawcett Publications, Inc.

Cover photos are by Hal Kelly, Hank Clark, C. M. Ungerbuehler, Gene Edmonds, Ted Benze and the American Plywood Association.

Fawcett Publications, Inc., is a member of American Book Publishers Council, Inc.



CONTENTS

Nimble	4
Fun Fish	20
Aqua Cat	26
Plyak	30
Roamer	34
First Mate	38
Alert	44
Marianne	48
Ski Tow	56
Guppy	60
Escape	64
Catfish	68
Turnabout	72
OK	76
Dreamer	80
Ring-a-ding	84
Waterwing	88
Pudgy	92
Snapper	96
Taffy	102

Cast your ballot for a successful future!

236 I.C.S. COURSES



I. C. S. is the oldest and largest correspondence school. 236 courses. Business, industrial, engineering, academic, high school. One for you. Direct, job-related. Bedrock facts and theory plus practical

application. Complete lesson and answer service. No skimping. Diploma to graduates.

Send for the 3 free booklets offered here and find out how I.C.S. can be your road to success.

ACCOUNTING

Accounting
Cost Accounting
Federal Tax
General Accounting
Junior Accounting
Practical Accounting
Public Accounting

ARCHITECTURE AND BUILDING

Architectural Drawing & Designing
Architecture
Building Contractor
Building Estimator
Building Inspector
Building Maintenance
Carpenter-Building
Carpentry & Millwork
House Planning & Interior Design
Mason
Painting Contractor
Reading Arch. Blueprints
Review in Arch. Design & Practice
Review of Mech. Systems in Buildings

ART

Amateur Artist
Commercial Art
Commercial Cartooning
Illustrating
Interior Decorating
Show Card & Sign Prod.
Show Card Writing
Sign Painting & Designing
Sketching & Painting
Painting for Pleasure

AUTOMOTIVE

Automotive Transmission
Specialist
Automobile Body Rebuilding & Refinishing
Automobile Electrical Tech.
Automobile Engine Tune-Up
Automobile Technician
Automotive Mechanic
Diesel-Gas Motor Vehicle Engines

AVIATION

Aircraft & Powerplant
Mechanic
Introductory Aero-Engineering Technology

BUSINESS

Advertising
Basic Inventory Control
Business Administration

Business Correspondence
Business Law
Business Management & Marketing
Business Management & Production
Canadian Business Management
Condensed Business Practice

Industrial Psychology
Managing a Small Store
Marketing
Modern Executive Management
Office Management
Programming for Digital Computers
Programming the IBM 1401
Purchasing Agent
Retail Business Management
Statistics and Finance
Systems and Procedures Analysis

CHEMICAL

Analytical Chemistry
Chemical Engineering
Chemical Engineering Unit Operations
Chemical Laboratory Tech.
Chemical Process Control
Technician
Chemical Process Operator
Elements of Nuclear Energy
General Chemistry
Instrumental Laboratory Analysis

CIVIL ENGINEERING

Civil Engineering
Construction Engineering
Highway Engineering
Principles of Surveying
Reading Highway Blueprints
Reading Structural Blueprints
Sanitary Engineering
Sewage Plant Operator
Structural Engineering
Surveying and Mapping
Water Works Operator

DRAFTING

Aircraft Drafting
Architectural Drafting
Electrical Drafting
Electrical Engineering
Drafting

Electronic Drafting
Introductory Mechanical Drafting
Mechanical Drafting
Pressure-Vessel and Tank
Print Reading
Sheet Metal Layout for
Air Conditioning
Structural Drafting

ELECTRICAL
Electric Motor Repairman
Electric Motor Appliance Servicing
Electrical Contractor
Electrical Engineering (Power option or Electronic option)
Electrical Engineering Tech.
Electrical Instrument Tech.
Electrical Power-Plant Engineering (Steam option or Hydro option)
Industrial Electrical Tech.
Industrial Telemetering
Power Line Design and Construction

Practical Electrician
Practical Lineman
Reading Electrical Blueprints

ENGINEERING (Professional)

Chemical
Civil
Electrical
Mechanical
Industrial Management for Engineers

ENGLISH AND WRITING

Better Business Writing
Introductory Technical Writing
Modern Letter Writing
Practical English
Short Story Writing

HIGH SCHOOL

High School Business
High School College Prep. (Arts)
High School College Prep. (Engineering & Science)
High School General
High School Mathematics
High School Secretarial
High School Vocational
LANGUAGES
(Edited by Berlitz)
French

German
Italian
Spanish

LEADERSHIP

Basic Supervision
Industrial Foremanship
Industrial Supervision
Personnel-Labor Relations Supervision

MATHEMATICS

Advanced Mathematics
Mathematics and Mechanics for Engineering
Mathematics and Physics for Engineering
Modern Elementary Statistics
Value Analysis

MECHANICAL

Industrial Engineering
Industrial Instrumentation
Machine Design
Mechanical Engineering
Quality Control
Safety Engineering
Technology
Tool Design

PETROLEUM

Natural Gas Production & Transmission
Oil Field Technology
Petroleum Production
Petroleum Production Engineering
Petroleum Refinery Oper.

PLASTICS

Plastics Technician

PLUMBING

HEATING, AIR CONDITIONING

Air Conditioning
Air Conditioning Main.
Domestic Heating with Oil & Gas
Domestic Refrigeration
Gas Fitting
Heating
Heating & Air Conditioning with Drawing

PLUMBING & HEATING

Plumbing & Heating Contractor
Plumbing & Heating Estimator
Practical Plumbing
Refrigeration

Refrigeration & Air Conditioning
Steam Fitting

PULP AND PAPER

Paper Machine Operator
Paper Making
Pulp Making
Pulp & Paper Engineering
Pulp & Paper Making

RAILROAD

Car Equipment
Fundamentals
Motive Power Fundamentals
Railroad Administration
SALESMANSHIP
Creative Salesmanship
Real Estate Salesmanship
Sales Management
Salesmanship
Salesmanship & Sales Management

SECRETARIAL

Clerk-Typist
Commercial
Professional Secretary
Shorthand
Stenographic
Typewriting

SHOP PRACTICE

Foundry Practice
Industrial Metallurgy
Machine Shop Inspection
Machine Shop Practice
Machine Shop Practice & Toolmaking
Metallurgical Engineering
Technology

PATTERNMAKING

Practical Millwrighting
Reading Shop Blueprints
Rigging
Tool Engineering Techn'g
Toolmaking
Welding Engineering
Welding Processes

STEAM AND DIESEL POWER

Boiler Inspector
Industrial Building
Engineer
Power Plant Engineering
Stationary Diesel Engines
Stationary Fireman
Stationary Steam Engineering

TEXTILES

Carding
Carding and Spinning
Cotton Manufacturing

Dyeing & Finishing
Loom Fixing
Spinning

Textile Designing
Textile Engineering
Technology
Textile Mill Supervisor
Warping and Weaving
Wool Manufacturing

TRAFFIC

Motor Traffic Management
Railway Rate Clerk
Traffic Management

TV-RADIO-ELECTRONICS

Communications Techn'g
Electronic Fundamentals
Electronic Fundamentals (Programed)
Electronic Fundamentals with Electr. Equip. Tr'n'g
Electronic Instrumentation & Servo Fundamentals
Electronic Principles for Automation

ELECTRONICS AND APPLIED

Calculus
Electronics Technician
First Class Radiotelephone License
Fundamentals of Electronic Computers
General Electronics
General Electronics with Electronic Equip. Tr'n'g
Hi-Fi Stereo and Sound Systems Servicing
Industrial Electronics
Industrial Electronics Engineering

INDUSTRIAL ELECTRONICS

Engineering Technicians
Practical Radio-TV Eng'g
Practical Telephony
Principles of Radio-Electronic Telemetry
Principles of Semiconductor-Transistor Circuits
Radio Servicing with Radio Equipment Training
Radio & TV Servicing
Radio & TV Servicing with Radio Equip. Tr'n'g
Second Class Radiotelephone License
Sound Systems Specialist
Telephone, Electronics and Radio Communications
TV Receiver Servicing
TV Technician

Clip coupon here—and take your first big step to real success! I.C.S., Scranton, Penna. 18515

Accredited Member,
National Home Study Council

INTERNATIONAL CORRESPONDENCE SCHOOLS I C S

Box 190, Scranton, Penna. 18515

(In Hawaii: P. O. Box 418, Honolulu. In Canada: I. C. S. Canadian, Ltd., Montreal.)

Without cost or obligation, rush me "HOW to SUCCEED," the opportunity booklet about the field I have indicated below, and a sample lesson.

Name of the course in which you are interested _____

Your Name _____

Age _____

Address _____

City _____

State _____

Zip Code _____

Working Hours _____

A.M. to _____

P.M.

Occupation _____

Employed by _____

Low rates to members of U. S. Armed Forces!
Special training programs for industry

Nimble

*Want a real boat? Build this
sweet and salty 30 ft. schooner!*

By V. B. Crockett

ONE OF THE SMALLEST schooners to sail the Maine coast, this "big-little" thirty footer is fun to sail and a joy to own. Designed and built for the rugged waters of Maine, she is at home in deep water anywhere. Strongly and heavily built, she sails well in light air and when it is really blowing she can take it with the best of them. With her saucy sheer and down-easter look she reminds many people of the old timers that were once so plentiful on the coast.

The accommodations in this little schooner are very spacious for her size. She has an extra-large galley with sink, icebox and stove and ample space for dishes and stowage. Her toilet room is good size and includes a large linen locker and wash basin. Forward of the toilet and galley are the main cabin berths which double as seats. Upper berths may be added to sleep four in the main cabin. In the forward cabin there are two berths and ample storage space.



In Nimble, V. B. Crockett has captured the saucy "down-easter" look of the old timers.

One of the keynotes of this design is the lack of frills or gimcracks. She was designed for comfort and sea-going ability with the accent on common sense design.

The engine is a 16 HP Palmer which gives a good honest $5\frac{1}{2}$ knots without any fuss. Her sail plan is moderate and it has to be really blowing before reefing is thought of.

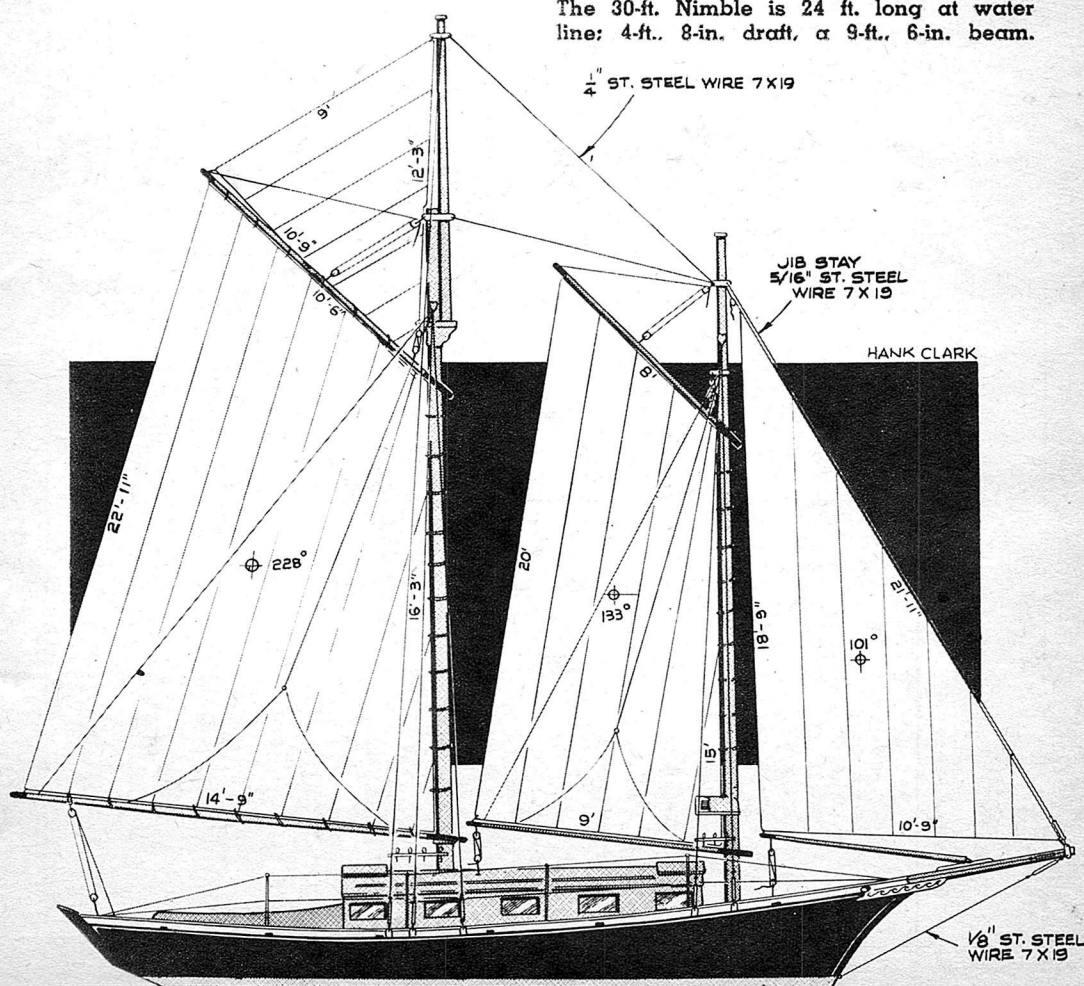
Although this boat was designed, and the plans drawn, for professional builders there have been many of the plans purchased by amateur builders and there is no reason why, if one is patient and takes his time, the amateur builder could not build a boat to be proud of.

The laying down of the lines, and the making of the patterns and molds from them, is one of the most important steps

in the building of any design and it should be emphasized that this step must be carefully done. To do the job right the lines should be laid down on a floor long enough and wide enough to fair all the lines. The offsets given with the plans are corrected offsets, but if you want to do the job right you should make the lines full size as shown, so that your patterns and molds are as perfect as you can get them. I would suggest that you make your iron keel pattern after the lines are laid down. While you are waiting for your iron keel to arrive get out the patterns for the rudder, keel, stem, deadwood, etc.

I am not going into detail about the steps in building this boat as I believe the person who builds the schooner will know the basic facts of building. How-

The 30-ft. Nimble is 24 ft. long at water line; 4-ft., 8-in. draft, α 9-ft., 6-in. beam.



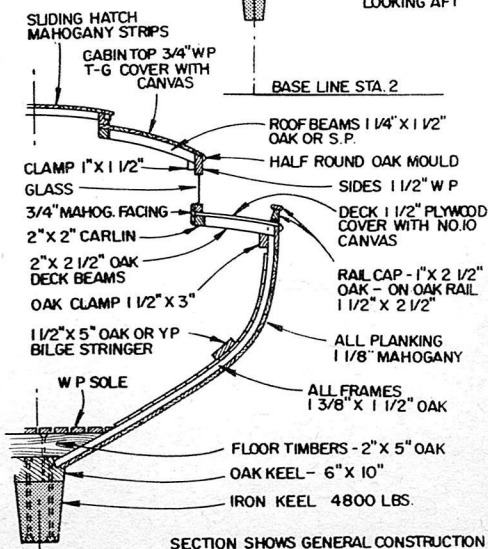
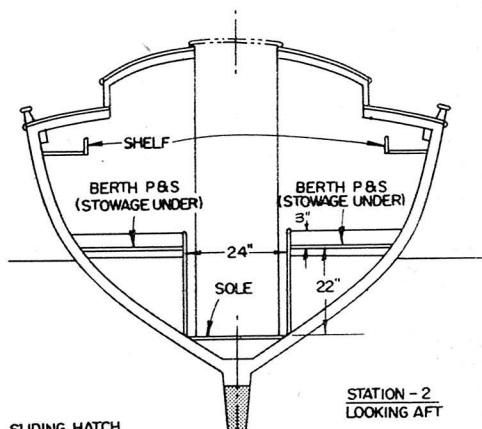
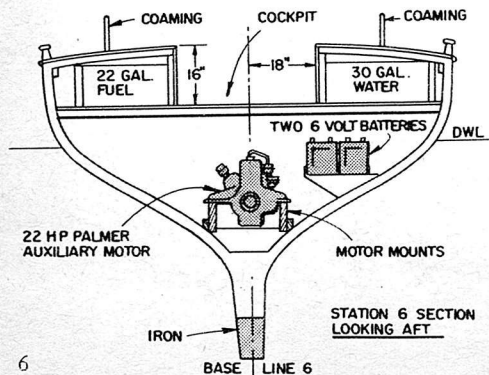
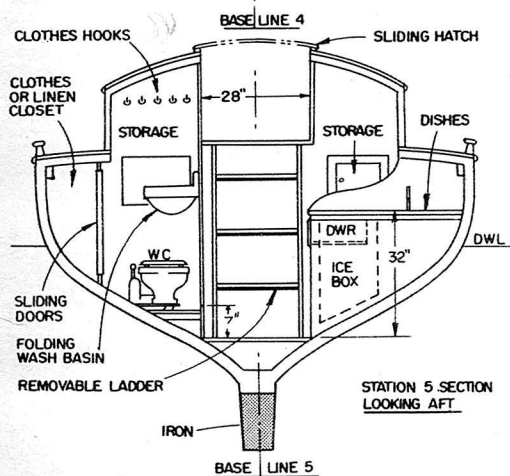
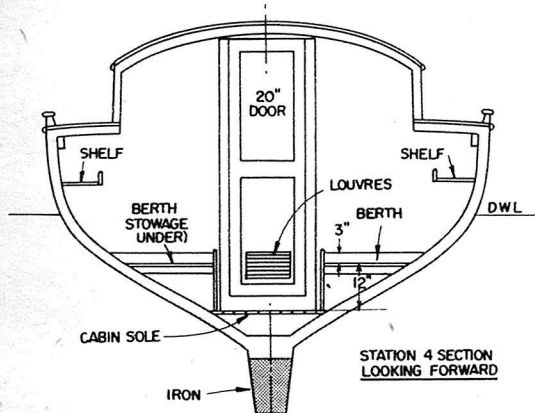
ever, there are many books on boat building which could be of help and I strongly urge that at least one be kept at hand for reference.

Following are the complete specifications.

The object of these specifications is to supplement the drawings. In case any item is mentioned in these specifications

and is not shown in the drawings or vice versa, it is to be considered that such items are shown in both the specifications and drawings. The fact that ANY item ESSENTIAL to the SEAWORTHINESS or safety of the boat is not shown, or described in the drawings or specifications shall not be considered as an excuse for the elimination of such items on the completed boat.

All lumber shall be of good quality, free from knots, shakes, checks or warps, with the exception that tight knots of not over $\frac{1}{2}$ " diameter will be permitted. Marine glue of approved quality shall be spread on every faying surface adjacent to the water. All fastenings and other hardware to be either hot-dipped galvanized iron or brass, bronze, Everdur or other non-ferrous metal. Throughout the construction only articles of approved marine-type will be permitted.





LA SALLE EXTENSION UNIVERSITY

A Correspondence Institution • 417 South Dearborn, Dept. 35-068, Chicago, Illinois 60605

Please send me, without cost or obligation, FREE booklet and full information on the field I have checked below:

ACCOUNTING

- ☐ Complete Accounting with CPA Training
- ☐ General Accounting
- ☐ Federal Income Tax
- ☐ Accounting Systems
- ☐ Auditing Procedure
- ☐ Controllorship
- ☐ CPA Training
- ☐ Modern Bookkeeping

BUSINESS MANAGEMENT

- ☐ Complete Business Management
- ☐ Credit and Collections
- ☐ Office Management
- ☐ Personnel Management
- ☐ Business Correspondence

LAW COURSES

- ☐ Bachelor of Laws Degree
- ☐ Business Law
- ☐ Insurance Law
- ☐ Claim Adjusting Law
- ☐ Law for Police Officers
- ☐ Law for Trust Officers

SALESMANSHIP

- ☐ Sales Training

DRAFTING

- ☐ Basic Drafting
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Architectural Drafting
- ☐ Structural Drafting
- ☐ Aeronautical Drafting

REAL ESTATE

- ☐ Complete Real Estate
- ☐ Real Estate Brokerage
- ☐ Real Estate Management
- ☐ Real Estate Sales

TRAFFIC AND TRANSPORTATION

- ☐ Complete Traffic Mgt.
- ☐ Rates and Tariffs
- ☐ Agency and Services
- ☐ Motor Truck Traffic

STENOTYPE

- ☐ Machine Shorthand

TECHNICAL COURSES

- ☐ Auto Body Repair
- ☐ Refrigeration
- ☐ Air Conditioning
- ☐ Diesel
- ☐ Welding
- ☐ Motor Tune-up

HIGH SCHOOL

- ☐ High School Diploma
- ☐ Vocational Course

CAREERS FOR WOMEN

- ☐ Dental Assistant
- ☐ Secretarial
- ☐ Accounting
- ☐ Bookkeeping
- ☐ Real Estate

Name.....Age.....

Address.....County.....

City & Zone.....State.....

Occupation.....Working Hours.....A.M.....P.M.

Canadian Residents, write: LaSalle, Box 1001, Montreal 3, Quebec

322

If you had mailed this coupon a year ago, your salary could be way up too!



WHY NOT MAIL IT TODAY?

Look at these enthusiastic letters. Have you ever seen anything like them? There are hundreds and hundreds more that pour in from LaSalle students week after week, month after month, year after year.

Do you know that many graduates attribute their increases in income largely to their LaSalle training?

All LaSalle students have one ambition in common—to get out of the ranks of the untrained and earn big money, prestige and security in a key job. Isn't that your goal too?

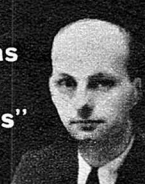
Without interfering with your present work—and by devoting only a little of your spare time—you too can prepare rapidly for advancement in the field of your choice through LaSalle home study. The cost is surprisingly low.

LaSalle has been an acknowledged leader in home education for more than half a century. It has provided training in business, high school, and technical subjects to more than 1,000,000 ambitious men and women. Its distinguished faculty includes some of the country's most outstanding authorities. That is why your LaSalle diploma is a credential recognized and respected everywhere.

Check the subject you are interested in—then send the coupon above for FREE booklet. No obligation.

"My salary has increased 400% as a direct result of my LaSalle studies"

Rudolph Urbatis,
Port Chester, N.Y.



"Salary more than doubled since enrolling"

William T. Black,
Canoga Park, Calif.



"Income has increased 100 per cent since graduation"

James L. Yonning,
Manhattan, Kansas



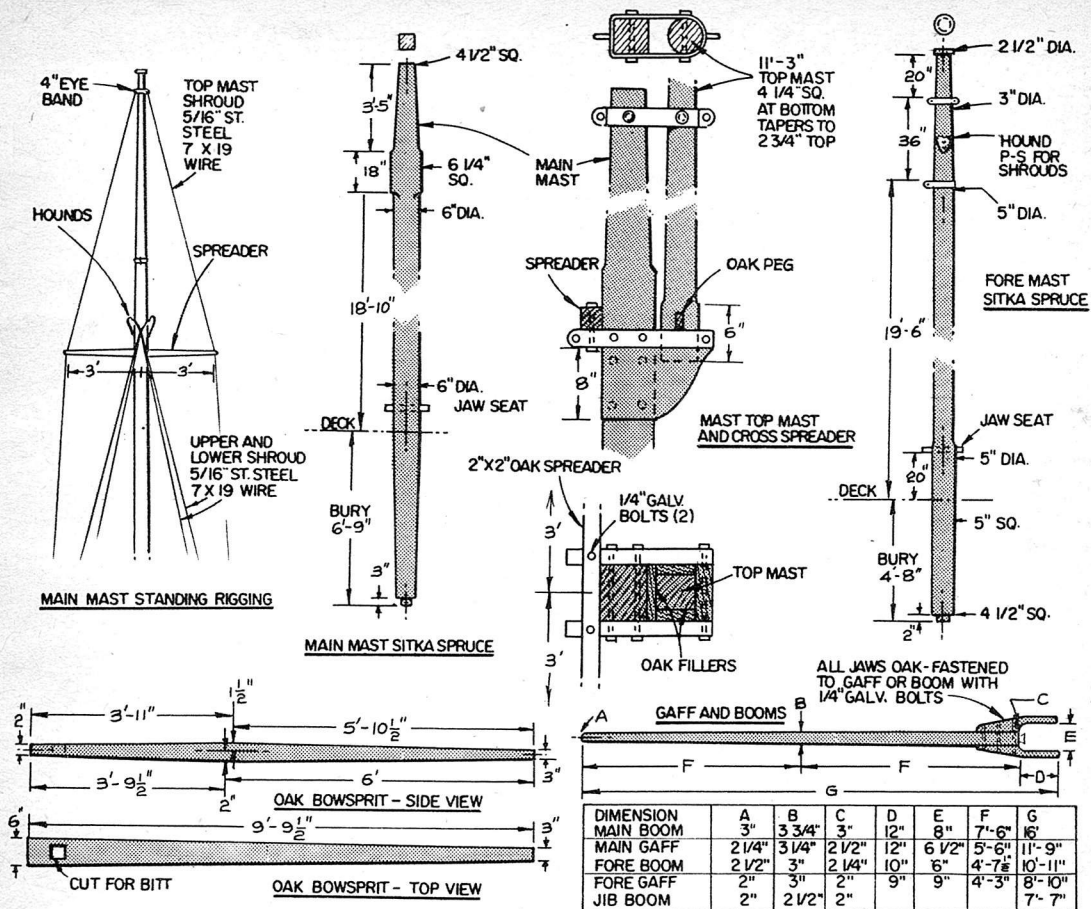
"I now earn three and a half times my former pay"

Robert Fisher,
Holbrook, Ariz.



LA SALLE EXTENSION UNIVERSITY

A Correspondence Institution • 417 S. Dearborn, Chicago, Illinois 60605



The lines of the boat are to be laid down full-scale on the shop floor from the accompanying table of offsets. Although the Table was prepared as carefully as possible slight variations may be found and will be permitted for fairing purposes only.

Where more than one material is specified, they are given in the order of preference. Wherever a part is actually dimensioned on the drawing or specified by size, such dimensions are to be used in preference to those obtained by scaling.

WOOD KEEL: Oak. 6"x10" and molded as shown on plans. Fastened to iron keel with 3/4" galv. bolts, staggered and spaced as shown.

IRON KEEL: To be cast as shown on plans. 4800 lbs. approx.

STEM: Oak. Sided 4" and molded as shown. Fastened with 1/2" galv. carriage bolts.

STEM KNEES: Oak. Sided 4" and molded as shown. Fastened with 1/2"

galvanized carriage bolts to the keel.
HORN TIMBER: Oak. Sided 5" and molded as shown. Fastened with 1/2" galv. drift bolts as shown on plans.

CUPRINOL: Bilge-back bone-behind ceiling.

SHAFT LOG: 6" oak bored for 1" shafting. Through fastened with 1/2" galv. drift bolts as shown on plans.

DEADWOOD: White oak sided 4" and molded as shown. Through fastened with 3/8" galv. bolts as shown. All joints locked.

TRANSOM: Mahogany or oak 1 1/4" thick. On the forward outer edges of transom 7/8" x 2" oak cleats must be screwed to form an extra backing for plank ends. If preferred, the cleats may be set in from edge of transom so that end grain of planks will not show. In this case, increase thickness of cleats to 1 1/8". Transom to be fastened to stern post with through bolts of at least 3/8" diameter.

STOPWATERS: There will be stop-

13 Boats You Can Build on a Budget

Here they are! 13 Boats designed for the amateur boatbuilder with built-in budget appeal. Their very low costs have been achieved through special economy designs that are sure to give you more boat for every dollar spent. Listed below each boat are your approximate material cost and your time of construction to make it easy to choose the boat best suited to your needs and to your budget.

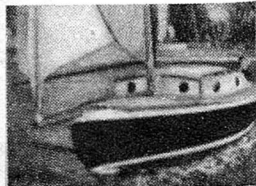
Remember, too, it's easy to build a boat from

an S&M craftprint—as witness over a quarter million amateur boat builders who have. Each craftprint comes complete with fully detailed, enlarged-size drawings, a complete materials list and step-by-step building instructions. No special tools are needed to build a professional looking boat from our plans, no special skills. For the boat of your dreams at a price you can afford order the craftprint of your choice today!



24—RANGER—Outboard Cruiser
Materials cost: \$227.00
Construction time: 70 hrs.

17-ft. outboard cruiser. Seats four or sleeps two. Takes 25 to 50 hp motors. High-speed Vee-bottom design. All accommodations included. Plywood construction.



106—PETREL—Multi-purpose sloop
Materials cost: \$163.00
Construction time: 85 hrs.

16-ft. sailer that can be built as an open-cockpit racing craft or as a cabin sailing model with accommodations for overnight trips. Can also be adapted to outboard or air-cooled inboard motors from 1 to 6 hp. Seats four. Weight complete, 650 lbs.



150—NANCY JANE—Inboard Runabout
Materials cost: \$137.00
Construction time: 120 hrs.

19-ft. all-purpose inboard runabout of durable cockpit design with or without cabin. Takes marine or converted auto engines up to 100 hp. Single screw. Plywood construction over oak frame.



154—MUSTANG—Speed Runabout
Materials cost: \$62.00
Construction time: 38 hrs.

10-ft. high-speed runabout that seats three comfortably. Ideal for use with motors up to 8 hp. Good auto-top boat. Sturdy plywood construction.



157—SKEETER—Light Racer
Materials cost: \$31.00
Construction time: 15 hrs.

8-ft. lightning-fast, blunt-nosed racing hydroplane. Will take outboard motors up to 10 hp. Plywood and canvas construction makes it light and easy to handle.



165—YELLOW JACKET—Racing Hydro
Materials cost: \$39.00
Construction time: 20 hrs.

8-ft. Class A racing hydroplane for use with 7½ hp motor. Fast, seaworthy. Simple construction.



239—SEA ROVER—Tri-model Outbd.
Materials cost: \$212.00
Construction time: 65 hrs.

Can be built as a sports, utility or cabin model in either a 15 or 17 ft. length. Weight of hull: 350 lbs. Capacity: sports model seats three persons in forward seat and four persons in cockpit on aluminum folding chairs. Construction is exterior plywood over framework. The unusual design of this boat gives it excellent maneuvering qualities.



267—SCOT CAT—3 Point Racer
Materials cost: \$58.00
Construction time: 45 hrs.

8½-ft. 3-point racing hydroplane meets requirements of Class A and B racing rules. New advanced hull design. May be built in fraction of time ordinarily required for such a craft. Three-ply or over spruce construction.



206—TERN—Sailing Racer
Materials cost: \$153.00
Construction time: 75 hrs.

There's a charm about the tiller of a sailer that's not matched by the wheel of a motor-powered boat. Even with her 72 sq. ft. of sail, "Tern" is remarkably stable, and packs as many as four persons aboard. She's remarkably easy to build. Common hand tools are all you really need.



201—PLAYBOY—Sports Runabout
Materials cost: \$155.00
Construction time: 50 hrs.

Sharp! Styled like a sporty inboard—that's "Playboy." From her wrap-around spray rails to the forward cockpit, "Playboy" simply exudes class—superior to any factory-built runabout in looks and performance. With a Johnson or Evinrude 25, "Playboy" will step around lively at 32 mph. Length, 14 ft. Beam, 5 ft. 9 in. overall. Weight of hull, 300 lbs. with all equipment aboard except motor. Ideal for extended trips afloat, hauling water skiers and aquaplanes, or as a sporty fishing craft.



270—SEA FLEA—Midget Sailer
Materials cost: \$33.00
Construction time: 24 hrs.

The lug rig utilizes short, easily dismantled spars that can be carried atop an auto as conveniently as the boat itself. Length, 10 ft. Beam, 48 in. Weight: Hull, 80 lbs.; spars, 15 lbs.



210—SEA BABE—Sports Cruiser
Materials cost: \$254.00
Construction time: 70 hrs.

15-ft. sports cruiser, ideal for trips in protected waters, hauling water skiers or aquaplanes and trolling or deep-water fishing. Sleeps two persons for overnight cruising or seats four persons. Speeds up to 32 mph with a 25 hp outboard. Handles easily on a 2-wheel trailer.



266—GLIDE EASY—Canoe
Materials cost: \$50.00
Construction time: 30 hrs.

15-ft. combination plywood and fiberglass construction. Can be used as a double-ended-paddling canoe or with square stern and powered by outboard motors up to 4 hp. Includes plans for outrigger and pontoon.

THE CRAFT PRINTS ABOVE ARE \$3 EACH

SCIENCE & MECHANICS/Craftprint Division DEPT. 20
505 Park Avenue, New York, N. Y. 10022

Enclosed is \$_____ for which please send me the boat plans circled below.

24	106	150	154	157	165	201
206	210	239	266	267	270	

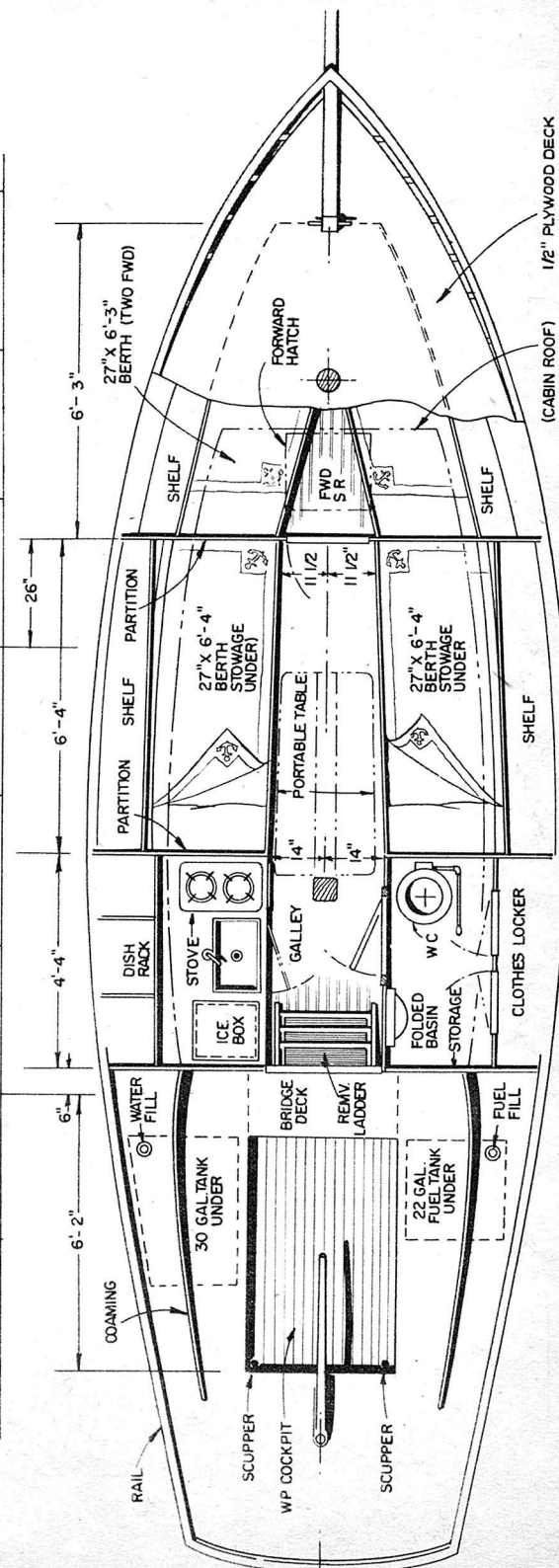
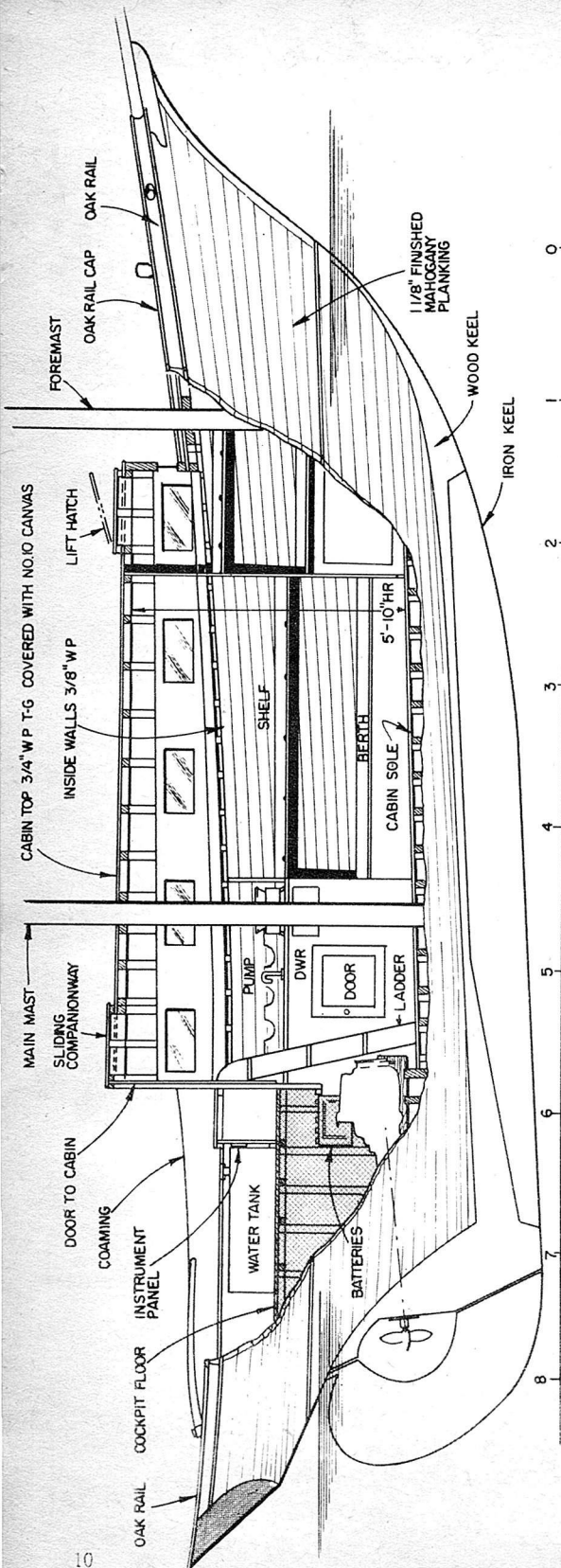
Complete plans for any of the above boats are \$3.00 for each plan ordered. However, if you order two or more plans at the same time, you may deduct 25¢ per plan. That is, for two plans you may deduct 50¢; three plans 75¢, etc.

Name _____ (Please print)

Address _____

City _____ State _____ Zip _____

Allow four-five weeks for third class mail delivery of above Craft Prints. For first class mail delivery, add 50¢ for each Craft Print ordered.





You Schedule the Orders while Your Servicemen Bring You \$18 an hour gross profit

Yes, that is your hourly gross profit from the work of only three servicemen . . . at "national-price-guide" rates. And this is much easier to do than you think. We show you how . . . step by step. Duraclean dealers find it is easy to gross \$6 per hour on EACH serviceman plus \$9 per hour on any service they themselves render. Your income is limited only by the number of servicemen you employ. The 24 page illustrated booklet we'll mail you (with no obligation) explains how most of your gross profit becomes a clear net profit to you.

Start while Continuing Present Job We furnish all the equipment...and help finance you

If you've wanted to be YOUR OWN BOSS . . . to become financially independent . . . have a fast growing income . . . and own a Nationally Advertised business, NOW YOU CAN! This business is easy to learn . . . easy to start . . . easy to service . . . and no experience is needed. We show you everything and furnish all equipment. At the start you can stay on your present

It's Easier than You Think to Start Your Own Business

When you receive our illustrated booklet, you will see the way we show you step by step how to quickly get customers . . . how to steadily build more customers from their recommendations.

All six services are rendered "on location" in homes, offices, hotels, theatres, churches, clubs, motels and institutions. These superior, safer and convenient methods spread Duraclean dealerships throughout the world. National Magazine advertising explains

Start Small, Grow Big...in this Booming Business

Many men have said to us, "I can't afford to give up my job till I know I have a sure thing . . . a sound business that will provide both security and a better living for my family."

That made sense to us so we worked out such a plan. You can start small and grow big just as we did. A third of a century ago Duraclean was an idea . . . but it caught fire and spread rapidly to a worldwide success. It spread because it was based upon (1) superior processes and (2) proven customer-getting methods. You don't experiment. You use tested, proven methods. You have our backing and "know how."

Our first service, the care of carpets and upholstery, exemplifies these superiorities. It not only cleans; it enlivens the fibers . . . revives dull colors. Pile rises with new life. Furnishings are used again in a few hours.

job, do servicing evenings or weekends, or you can line up jobs for your servicemen to do while your customer list grows . . . then switch to full time. One small job a day brings a good starting income . . . and you operate from your home phone.

If you are reliable, honest, and willing to work to become financially independent, mail the coupon for complete facts.

the superior merits of your services, builds your customer confidence and brings job leads to you.

You have pre-tested newspaper and yellow-page ads, commercials, and a full mailing program.

Furnishings stores, insurance adjustors and decorators refer jobs to our dealers. The year 'round services are in constant demand. Investigate TODAY . . . before someone else takes your location.

There's no machine scrubbing. No soaking. Duraclean cleans by absorption. Mild aerated foam lightly applied, lifts out dirt, grease and many unsightly spots like magic.

Government figures show \$750 million yearly potential just in rug and furniture cleaning. You have five other services . . . fully explained in the free booklet.

A few hundred dollars establishes YOUR OWN business. A day's profit more than takes care of the monthly payments we finance for you.

We furnish electric equipment and enough materials to return your TOTAL investment. It is surprisingly easy to learn this business. You can decide from the information we will send you whether to apply for a dealership. So, with no obligation whatever, mail the coupon TODAY.

Own a Nationally Advertised Business

Your Services Are Endorsed by McCall's Magazine, American Research & Testing Laboratories and by leading Carpet Mills & Furniture Makers

What Dealers Say:

Langdon Lawson: National advertising is tops, creates leads. In September, working alone, jobs totaled \$1,475.

Charles Randal: Business keeps growing. Made as much as \$120 in one day.

D. Kern: Duraclean's proven-best process and the continuous help from headquarters gave me a big jump on all competition.

George Byers: For University, my total billing was \$2,416. Total expenses \$814.

Gerald Weihrach: Three persons called me—saw Duraclean advertised in magazines.

Edward Hoy: A smoke damage insurance claim bill was \$186. All work was done by me in exactly 8 hours and 2 minutes.

W. C. Smith: Earned \$650 one week. Volume keeps getting bigger.

Service man for dealer C. Weed: Furniture was filthy black. When through, I was amazed how clean.

John E. Frost: First 2 months I grossed \$1,000 part-time.

Loren Farris: I'm proud to be independent at 30. I wish I had known about Duraclean earlier.

Earl Davis: Our sales increased \$17,660 this year.

Ed. Kramsky: In 2 years, now have two assistants, a nice home and real security for my family.

Resale Service

If, because of illness, moving or for any reason a dealer wants to sell, we maintain a service to locate buyers and to help him sell.

Dealerships resell at up to 10 times the dealer's cost. R.D.K., after 5 months, sold for \$2,000 above his cost. L.L., after 30 months, got \$7,116 more than he had paid. The value of your dealership and franchise grows monthly.

FREE BOOKLET tells how to Start Your Own Business

With no obligation, we'll mail you a letter and 24 page booklet explaining this business . . . how and why—your income grows . . . how we help finance you. Then decide if this opportunity fulfills your dream of independence and a much bigger income.

Your location could be taken tomorrow . . . so mail coupon today.

FIND OUT—NO OBLIGATION



Mail this coupon TODAY
It may put you in business

Duraclean Co.-FNSN Duraclean Bldg., Deerfield, Ill. 60015

With no obligation, mail letter with 24 page illustrated booklet explaining how I can increase my income and family security with a Duraclean Dealership.

Name _____

Address _____

City _____ Zone _____ State _____

waters at all necessary points. Same to be $\frac{1}{2}$ " pine dowels set in marine glue.
BREAST HOOK: Oak 2" thick. Fitted as shown.

FRAMES: White oak $1\frac{3}{8}$ " x $1\frac{1}{2}$ " steam bent. To be boxed into keel and securely fastened. Frames to be spaced 9" on center.

FLOOR TIMBERS: Oak $1\frac{1}{2}$ " x 6". In way of engine bed and cabin floor mold to suit. Floor timbers to be bolted through wood keel with $\frac{3}{8}$ " diameter galv. bolts.

LIMBERS: There will be limber holes in each floor timber of $\frac{3}{4}$ " dia.

DECK BEAMS: Oak 2" x $2\frac{1}{2}$ " cut to a crown of $\frac{3}{8}$ " to 1'-0". Deck beams to be fastened to clamp with $\frac{1}{4}$ " carriage bolts and nailed to frames.

MAIN CLAMP: Oak or L. Pine $1\frac{1}{2}$ " x 3". To be fastened to frames and through bolted to deck beams with $\frac{1}{4}$ " galv. carriage bolts. At the ends the clamp will box into the stem and stern cleats and fillers will be arranged between the planking and clamps at the extreme ends.

PLANKING: Mahogany to finish $\frac{7}{8}$ ". Planks do not necessarily have to be in single lengths but no strakes should have more than 3 pieces. Butts should come about 4" forward or aft of the frames and should be braced with oak butt blocks $\frac{3}{4}$ " thick fitted tightly against the frame at one end. Length of butt blocks shall not be less than 8". Butts adjoining planks should not come within the same frame space and when two butts come within the same space, there must be three other planks in between. Planks are fastened with Anchorfast Monel Everdur nails with heads countersunk or bunged— $1\frac{3}{4}$ " No. 12. Frame fastenings should not be over 3" apart. To be well caulked.

BILGE STRINGERS: Oak $1\frac{1}{2}$ " x 5" fastened to frames. At ends box into stem and stern cleats. Use $\frac{1}{4}$ " galv. bolts at each frame.

DECKING: $\frac{3}{8}$ " plywood. Decking to be covered with 10 oz. canvas; plywood to be fastened to beams with nails.

CARLINS: Oak 2" x 2" as shown on plans. To be fastened to beams. $\frac{1}{4}$ " tie rods to be used spaced every third frame to tie carlin and clamp together.

CEILING: White pine $\frac{3}{8}$ " T & G. In the cabin to extend to floor. The same in the cockpit. Nail fastened.

FACING PIECE: Mahogany or oak $\frac{1}{2}$ " thick to extend length of cabin. Screw fastened to carlin and cabin sides. Use $\frac{3}{4}$ " No. 8 screws.

CABIN SIDES: Pine $1\frac{1}{2}$ " to be fastened to deck with $\frac{3}{8}$ " galv. tie rods.

CABIN TOP: White pine or cedar T & G $\frac{3}{4}$ " covered with 10 oz. canvas. Fasten galv. boat nails.

CABIN BEAMS: Spruce $1\frac{1}{4}$ " x $1\frac{1}{2}$ " cut to a crown of $1\frac{1}{2}$ " to 1'-0". Notched over and fastened to clamp with $1\frac{3}{4}$ " No. 10 screws.

CABIN CLAMP: Spruce 1" x $1\frac{1}{2}$ ". Fastened to cabin side with $1\frac{1}{2}$ " No. 8 screws.

WINDOWS: Three stationary windows P & S sizes as shown on plan.

PORTLIGHTS: Two 5" portlights on forward end of cabin.

CABIN FLOOR: $\frac{3}{4}$ " white pine. To be screw fastened with $1\frac{1}{4}$ " No. 8 screws to floor timbers. There will be loose boards in the center to be used as hatches.

COCKPIT FLOOR: $\frac{3}{4}$ " white pine to be watertight with self-bailing scuppers. Fasten with $1\frac{1}{4}$ " No. 8 screws.

COCKPIT FLOOR BEAMS: Oak $1\frac{3}{4}$ " x 2" to be fastened to frames and clamp. Use 3" No. 10 screws.

GRAB RAIL: Along the edges of the cabin roof there will be an oak grab rail. 1" x $2\frac{1}{2}$ " shaped as shown in plan and fastened by screws to the roof.

MAIN RAIL: Oak 3" high, $2\frac{1}{2}$ " at deck and tapered to $1\frac{1}{2}$ ". Scuppers shall be cut as shown on plan. To be securely fastened to deck beams and sheer strake with $\frac{1}{4}$ " drift bolts.

RAIL CAP: Oak 1" x $2\frac{1}{2}$ ". Screw fastened to rail with $1\frac{3}{4}$ " No. 12 screws.

MOLDING: There will be 2" Hf. rd., oak molding extending from stem to stern and screw fastened to planking just under rail.

COMPANIONWAY HATCH: $\frac{3}{4}$ " mahogany sliding companionway of usual construction, thoroughly watertight. Instead of doors under hatch, slides may be used for entrance to cabin.

FOR'D HATCH: Hatch $1\frac{1}{2}$ " pine, as shown in plans, with sliding hatch and

Take this big 196-page "Fix-it" book

FREE!

Yes, entirely FREE — and packed with plans, projects and ideas for make-it-yourself fun, ways to

save money by making home improvements and car tune-ups and repairs yourself, often doing them better than "high-priced" outside help and far easier than you might think.

ACTUAL SIZE
7½" x 11"

ALL This and More in
Your FREE Book:

ADDITIONAL BEDROOM
BUILT-IN CLOSETS
MODERN FURNITURE
TV REPAIRS
ANTENNA PROBLEMS
HOME VENTILATION
BURGLAR ALARMS
ALUMINUM PROJECTS
ATTIC EXPANSION
HOUSE FRAMING
GARDEN ACCESSORIES
BOOSTING GAS MILEAGE
WINDOW FRAMING
SKYLIGHTS
PLYWOOD PROJECTS
POWER TOOLS
AIR CONDITIONING
HOME AND CAR
TRANSMISSIONS
DRIVE SHAFTS,
AND DIFFERENTIALS
SPRAY PAINTING
OUTDOOR FURNITURE
WEBBING
DORMERS
WEATHERPROOFING
ATTIC FANS
BAR CART
PATIOS
BARBECUES
EMERGENCY
CAR REPAIRS
AUTO TUNE-UPS
STARTING PROBLEMS
CAR COOLING SYSTEM
ROOFING
SHEATHING
APPLIANCE
REPAIRS
GUTTERS
& FLASHING

PRACTICAL HANDYMAN'S ENCYCLOPEDIA

WHY DO WE GIVE AWAY THIS LARGE VOLUME—containing over 100 projects, 400 how-to pictures, 50,000 words—with-out "strings"? To demonstrate to home owners and hobbyists the dollars-and-cents value of our famous "how-to" Encyclopedia.

Which project do you want to start right away?

Want an extra room? Air condition your home? Trouble-free your TV antenna forever? Car tune-up, gas-saving tips? Build bar cart? Barbecue? Attic ventilator? Modern arm-chair? Free Volume I's experts guide your hands with clear photos... insiders' secrets... diagrams... checklists. Even beginners can't go wrong, waste time or materials. Save \$2.50—\$4.96 HOURLY LABOR — DO CRAFTSMANSHIP JOBS! Now even amateurs can handle "skilled" jobs. Save \$9 TV house calls. \$4.25 carpenters' hourly rate. Big car mechanics' bills.

How to have Vol. I shipped FREE immediately:

Fill out and mail shipping label below today. We'll send Vol. I right away FREE. Do not send it back or pay anything for it ever. Large 7½" x 11" book is typical of all 18 volumes in Practical Handyman's Encyclopedia. 3,456 pages, 7,000 show-how pictures, thousands of ideas and projects: gardening, furniture, plumbing, electrical, hi-fi, electronics... boats... cabins, cottages... photography... built-ins, kitchens, bath... concrete... etc.

After examining Vol. I, you may receive further volumes as they become ready. Examine each 7 days, then either remit only \$2.98 plus postage or return book, owe nothing. Buy one, two, as many books as you like... or whole set... or none at all. No pressure; no "catches". We stop sending books any time you write us.

Send shipping label now for FREE VOLUME I to: Practical Handyman's Encyclopedia, Dept. HBB-11, Box 77, Cos Cob, Conn.

SHIPPING LABEL

FROM: The Practical Handyman's Encyclopedia
Dept. HBB-11, Box 77, Cos Cob, Conn.

TO:

Name _____ (please print)

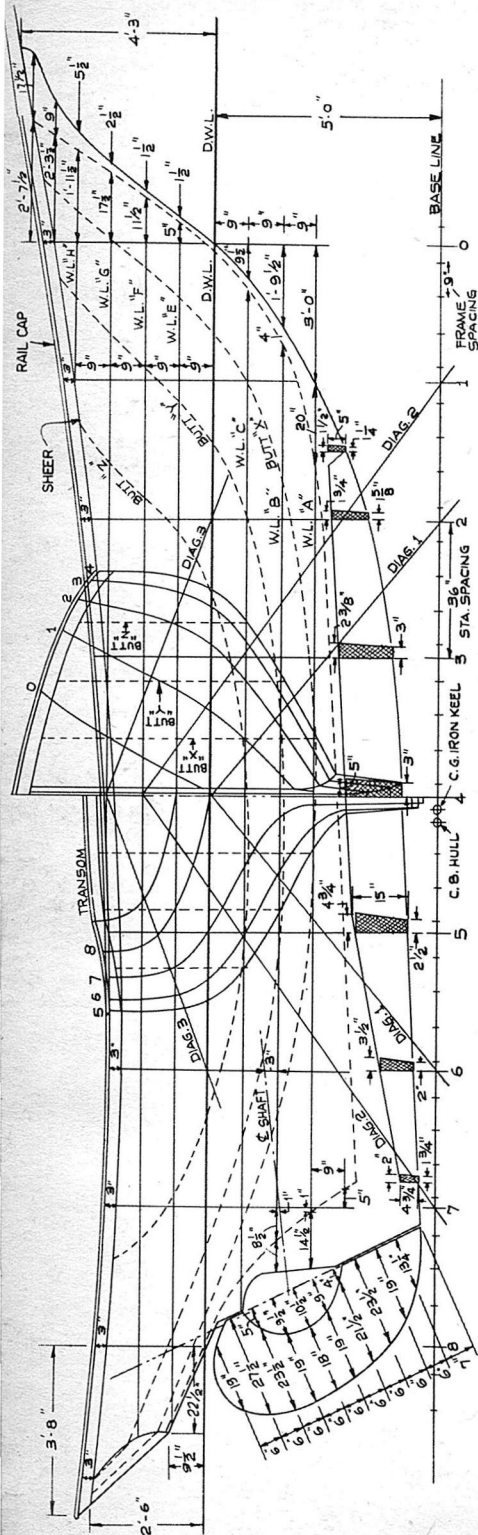
Address _____

City _____ Zone _____ State _____

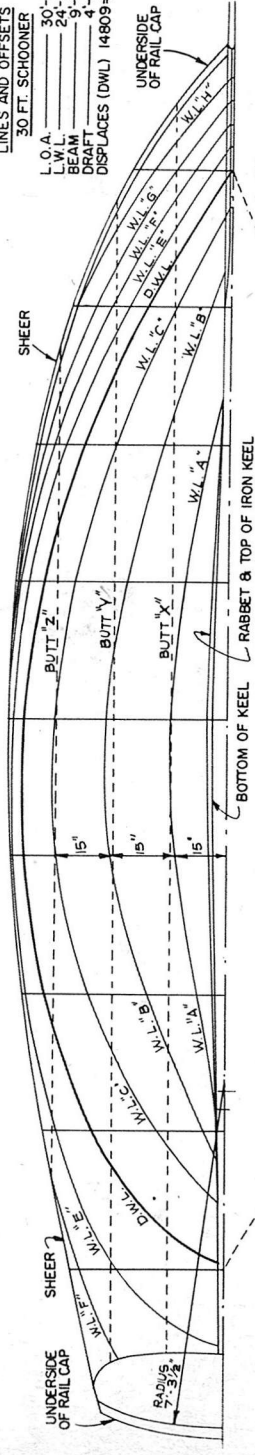
CONTENTS: BOOK. Volume I of The Practical Handyman's Encyclopedia. 1½ lbs., 196 pages, over 400 pictures, 55,000 words.

NO RISK NO OBLIGATION. WHAT YOU GET:

1. FREE 196-page, over 400-picture, over 100-project Volume I of The Practical Handyman's Encyclopedia. No cost at any time, no "catch," no obligation.
2. You are entitled to receive each new volume for 7 days' free approval. For those you decide to keep, you pay only \$2.98 plus shipping.
3. You never have to buy any books at all... or you can choose one or a few... or the complete matched Library set, if you wish... the choice is yours.
4. You may instruct us to stop shipping books simply by writing us and we'll cease shipment immediately.



LINES AND OFFSETS
 30 FT. SCHOONER
 L.O.A. 30'-0"
 L.W.L. 24'-0"
 BEAM 9'-6"
 DISPLACES (DWL) 14809#



ALL OFFSETS GIVEN IN
 FEET-INCHES-EIGHTHS
 TO OUTSIDE OF PLANKING

TABLE OF OFFSETS - HEIGHTS ABOVE BASE LINE

STATIONS	0	1	2	3	4	5	6	7	8
SHEER	86'-8-10	78'-3	72'-7	72'-0	68'-11	57'-14	72'-5	76'-0	
RABBIT	52'-3	51'-6	27'-0	27'-2	24'-2	25'-1	05'-2	74'-11	05'-6
BOT OF KEEL	5'-0	2'-9	1'-5	1'-0	0'-3	0'-6	0'-0	0'-0	0'-4
BUTT "X"	72'-4	3'-0	3'-2	2'-0	2'-6	2'-6	2'-9	3'-7	4'-1
BUTT "Y"	62'-0	4'-2	3'-5	3'-5	3'-4	3'-6	3'-1	3'-4	3'-0
BUTT "Z"	5'-0	4'-4	4'-4	4'-4	4'-4	4'-4	4'-4	4'-4	5'-0

TABLE OF OFFSETS - HALF BREADTHS

STATIONS	0	1	2	3	4	5	6	7	8
SHEER	2'-10	3'-5	4'-2	4'-4	4'-7	4'-9	4'-8	4'-5	3'-4
W.L. "H"	1'-8	2'-3	4'-4						
W.L. "G"	1'-3	0'-5	0'-1	4'-0	4'-2				
W.L. "F"	0'-9	4'-7	4'-3	0'-5	4'-6	4'-4	4'-1	3'-4	0'-3

TABLE OF OFFSETS CONTINUED

	0	1	2	3	4	5	6	7	8
W.L. "E"	0'-5	0'-2	3'-0	3'-5	4'-2	4'-9	4'-8	4'-4	3'-5
D. W.L.	1'-0	0'-3	2'-6	4'-0	4'-5	4'-5	4'-0	0'-1	0'-4
W.L. "C"	1'-2	4'-2	5'-6	3'-0	3'-9	1'-3	0'-0	1'-6	
W.L. "B"	0'-5	6'-1	5'-7	2'-3	2'-7	2'-6	1'-8	1'-0	0'-7
W.L. "A"	0'-4	5'-0	1'-0	1'-3	0'-1	1'-4	0'-8	0'-0	
RABBIT	0'-2	0'-0	0'-2	0'-0	4'-0	5'-0	5'-0	5'-0	2'-0
DIAG. NO. 1	1'-4	7'-2	16'-2	7'-0	6'-9	2'-8	2'-3	0'-1	0'-6
DIAG. NO. 2	0'-8	4'-1	3'-4	3'-1	4'-4	2'-4	2'-7	3'-1	3'-0
DIAG. NO. 3	1'-1	0'-2	8'-3	11'-2	4'-7	4'-11	4'-4	3'-4	0'-5
UNSHIP RAIL CAP	2'-2	4'-2	6'-4	4'-2	4'-0	4'-3	4'-8	4'-5	1'-3

THIS TINY SPACE-BATTERY RECHARGEABLE FLASH HAS TWIN BEAMS, WEIGHS JUST 2 OZ., IS THE World's Smallest, Most Powerful Flashlight

STRONGER THAN LARGE REGULAR 2-CELL LIGHT

■ This mighty midget is right out of science fiction, fits in the palm of your hand, can be worn on your wrist, fastened to a hat, carried in pocket or purse. Gives 5 hours of continuous light, then the permanent battery can be recharged right from your house current. (Never buy batteries again.) 2 powerful beams can be used together or separately, disperse light in 4 directions. Powered by a space-age cadmium dynacell. Flash and recharger unit, complete \$6.95. Mail your order in now!

**FLASH
& RECHARGER
\$6⁹⁵**

HAMILTON HOUSE

Dept. 1-576, Cos Cob, Conn.

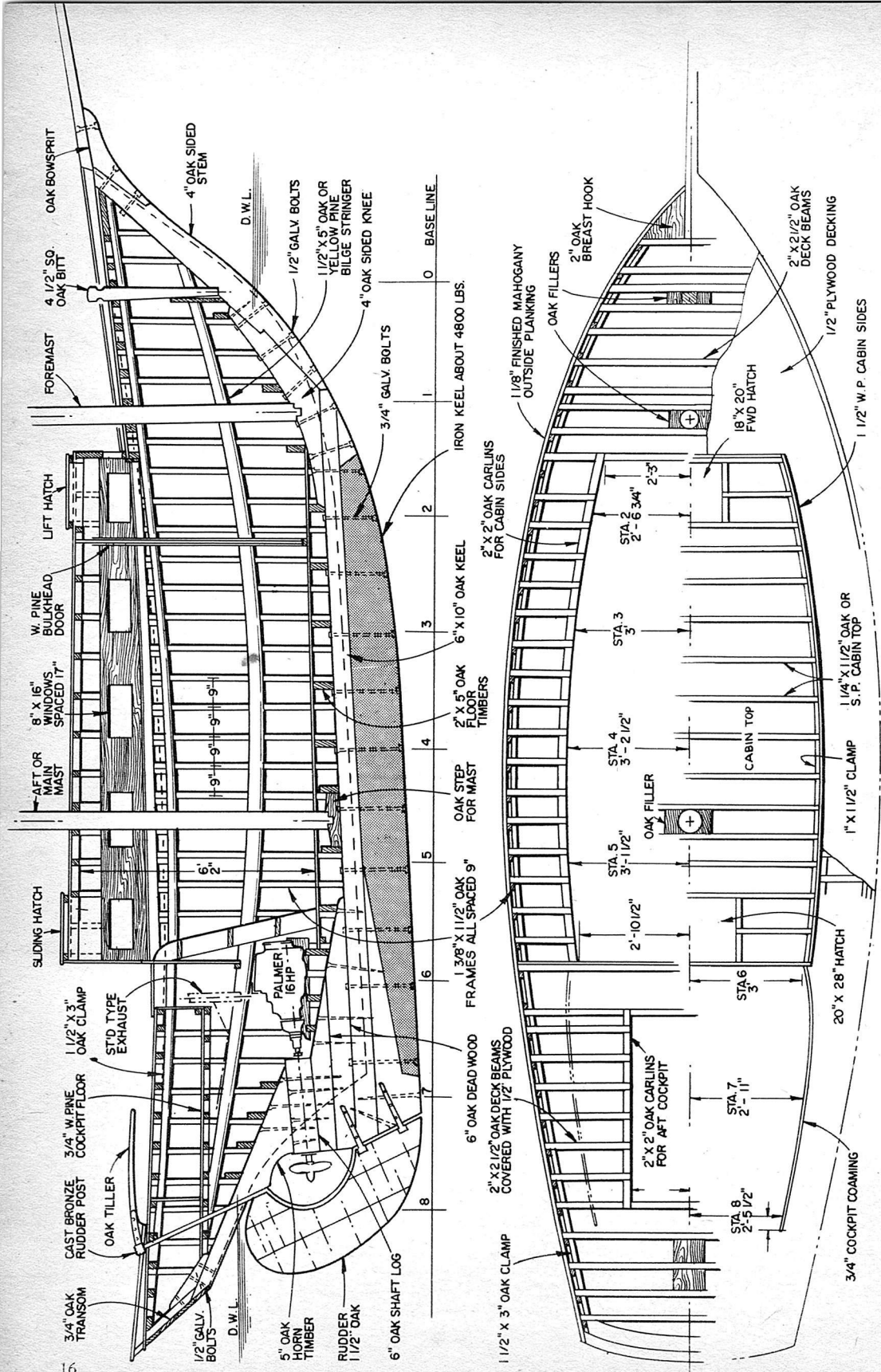
- ☐ Enclosed is \$6.95 plus 45¢ for postage, insurance, and handling in check, money order or cash. No C.O.D.'s. Rush me one FLASHLIGHT AND RECHARGER SET.
- ☐ Check here to order two Flashlight and Recharger sets. SAVE! Enclose just \$14.35 complete. We pay shipping charges on one set.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

**Money Back in Ten Days If Not
Completely Satisfied!**



NOW FULL SIZE PATTERNS

INSURE ACCURACY AND SAVE BOAT BUILDING TIME

Cleveland's cut-to-shape 70 lb. paper patterns are the best investment you can make because you get the exact shapes of the frames and transom plus the stem, keel, and knees. The blueprints are fully detailed so that professional results are easily obtained by anyone fairly handy with tools.

We offer 68 Designs including Fishing Boats, Garvies, Cruisers, Catamarans, Houseboats—Outboards, Inboards, Sailboats—from 7½ to 38 feet. Compare our designs before you start to build! Send for our illustrated, fully described catalog. Enclose 50¢ to cover handling and postage.

NEW!

Illustrated and fully described

"BUILD-A-BOAT" CATALOG

Send only 50¢ for handling and postage

Use This Handy Coupon

Cleveland Boat Blueprint Co., Dept. HTB 64
Box 18250, Cleveland 18, Ohio

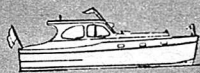
Gentlemen: ☐ Please rush your NEW "Build-A-Boat" catalog for which I enclose 50¢ to cover handling and postage.

☐ Enclosed is \$3.00 for your fully detailed, illustrated Booklet, "How To Build A Boat" and your NEW "Build-A-Boat" Catalog.

☐ Enclosed is \$..... for patterns and blueprints for foot

NAME

ADDRESS



30 FT. CABIN CRUISER
Patterns & Blueprints, \$42.50



38 FT. DECK HOUSE
POWER CRUISER
Patterns & Blueprints, \$75.00



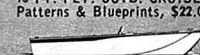
24 FT. CABIN CRUISER
Patterns & Blueprints, \$35.00



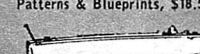
22 FT. PLY. OUTB. CRUISER
Patterns & Blueprints, \$28.00



18 FT. PLY. OUTB. CRUISER
Patterns & Blueprints, \$22.00



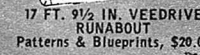
15 FT. OUTBOARD GARVIE
Patterns & Blueprints, \$18.50



20 FT. FAST RUNABOUT
Patterns & Blueprints, \$24.00



17 FT. 9 1/2 IN. VEEDRIVE
RUNABOUT
Patterns & Blueprints, \$20.00



14 FT. 4 IN. PLY. OUTB.
RUNABOUT
Patterns & Blueprints, \$15.00



20 FT. CRUISING SLOOP
Patterns & Blueprints, \$30.00



30 FT. OUTB.-POW'R'D HOUSEBOAT
Blueprints Only, \$20.00



32 FT. D-H CABIN CRUISER
Patterns & Blueprints, \$50.00



28 FT. 10 IN. CABIN CRUISER
Patterns & Blueprints, \$45.00



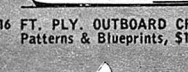
22 FT. INB. ALUM.
CABIN CRUISER
Patterns & Blueprints, \$32.50



16 FT. 9 IN. PLY.
INBOARD RUNABOUT
Patterns & Blueprints, \$20.00



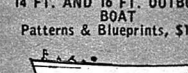
16 FT. PLY. OUTBOARD CRUISER
Patterns & Blueprints, \$19.00



19 FT. OUTDRIVE, OR 17 1/2 FT.
OUTBOARD GARVIE
Patterns & Blueprints, \$27.50



14 FT. AND 16 FT. OUTBOARD
BOAT
Patterns & Blueprints, \$14.00



14 1/2 FT. OUTBOARD UTILITY
BOAT
Patterns & Blueprints, \$14.00



12 FT. 6 IN. PLY. OUTBOARD
RUNABOUT
Patterns & Blueprints, \$10.00



15 FT. PLYWOOD SLOOP
Patterns & Blueprints, \$15.00



12 FT. UTILITY OUTBOARD BOAT
Patterns & Blueprints, \$10.00

slides same as those on companionway.

BULKHEADS: White pine or plywood $\frac{3}{4}$ " thick. Located as shown.

STEPS: As shown on plan. Removable to gain access to engine.

FILLERS: Oak fillers are to be placed tightly between deck and roof beams under every item of deck equipment to help carry strain to the beams. To be approximately 2" thick and not less than 6" wide.

RUDDER PORT: $1\frac{1}{2}$ " inside dia. pipe. Galv. or bronze.

RUDDER: Oak $1\frac{1}{2}$ " thick and tapered. Shaped as shown on plans and through

fastened with $\frac{1}{2}$ " galvanized bolts.

RUDDER POST: $1\frac{3}{8}$ " bronze rod.

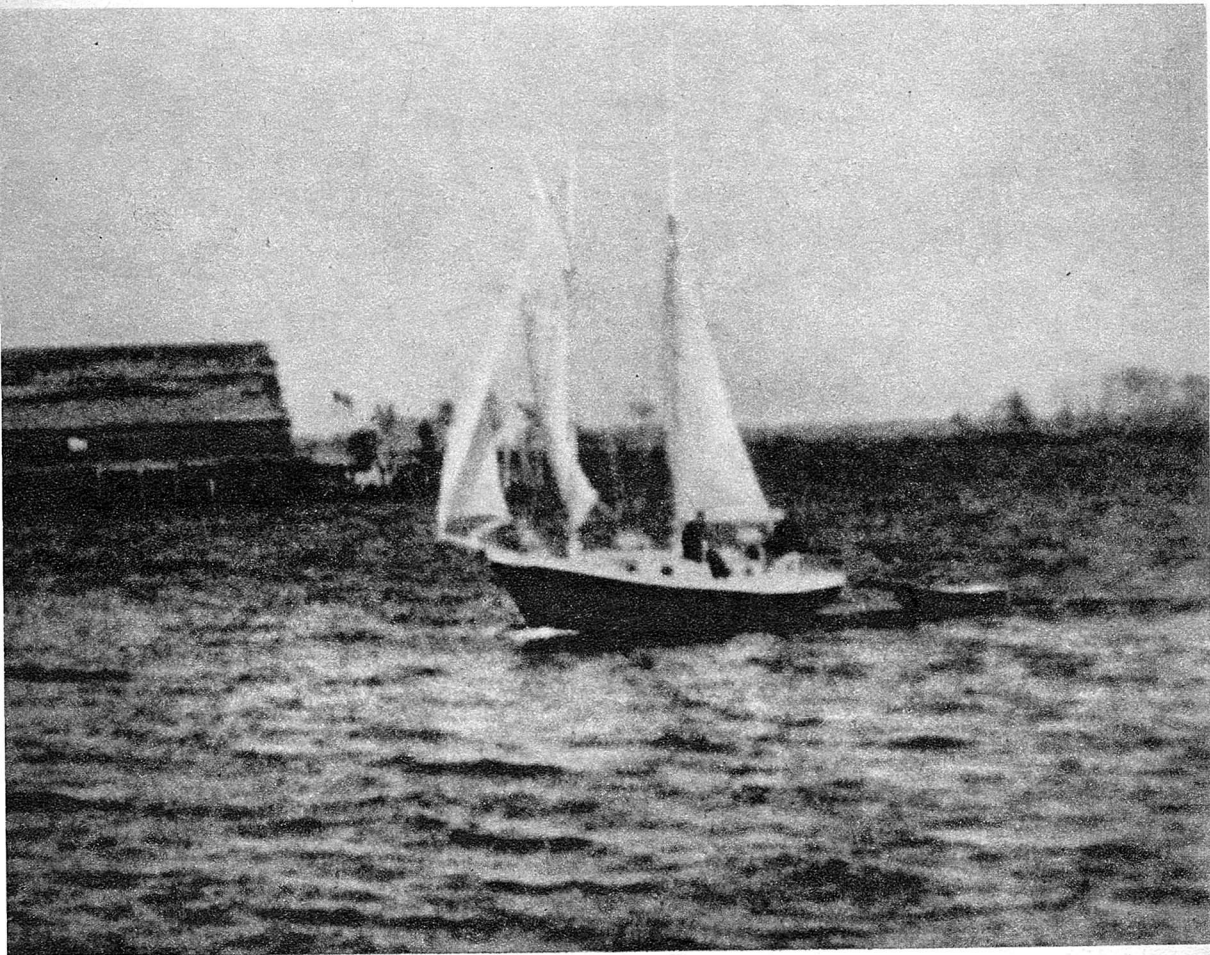
RUDDER GUDGEONS & PINTLES:

To be bronze, similar to those on plan.

TILLER: Oak of suitable size, shaped as shown. Securely fastened to the rudder.

ENGINE: *Palmer 16 H.P.* 1" shaft and a 16" x 8" two-blade propeller. To be securely fastened to 2" oak engine beds which are notched over floor timbers. Located as shown on plans. Exhaust to be arranged to suit engine.

VENTS: Cowl vent port & stb'd as shown on plan.



Nimble was designed for sea-going ability, with the accent on common sense and safety.

FUEL TANK: One stainless steel tank. 22 gals. capacity, located as shown on plans. Fitted with a tight filter pipe and vent pipe. Vent pipe to lead through transom close to deck. The vent pipe to be of pigtail type. Tank to be firmly braced into place to eliminate movement in any direction. Tank will be fitted with strainer, shut-off valve, and flexible copper tubing with flared fittings of the proper size leading to the carburetor.

WATER TANK: Same as fuel tank.

SHAFT: To be fitted with stern bearings and stuffing box of suitable type. If necessary, make extra bearing surfaces for shaft, to control flexibility.

MAST: Sitka spruce. To be constructed from details.

MAST KNEES: Oak, as per plan.

BOOMS: Sitka spruce, to be constructed from details.

DECK FITTINGS: Two cleats aft and one midships P & S. Also two bow chocks. Three small cleats P & S for fenders. See rigging plan.

LARGE-SCALE PLANS

are available for building this boat. For complete Blueprints and Specifications, send \$50 to V. B. Crockett, Designer, P. O. Box 133, Camden, Maine.

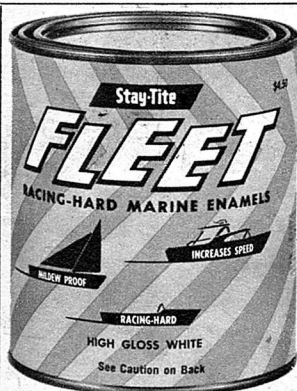
LIFE RAIL: Oak, as shown on plans.

TOILET: To be installed with sea cocks.

Toilet to be Sea Clo Junior, or equal.

PAINTING: Entire boat inside to have not less than 3 coats of paint and varnish. Outside, the bottom and topsides to have not less than 4 coats of paint or varnish. Deck to have one light coat of paint before canvas is applied. Canvas should have two coats of thin paint, after being sponged. Color as desired by owner.

GENERAL EQUIPMENT: Boat shall be equipped with all required government articles, irrespective of where she is to be used. •



IT'S EASY TO ADD SHOW ROOM BEAUTY TO YOUR BOAT BY USING **FLEET**... THE EASIER BRUSHING MARINE ENAMEL WITH DEEP, RICH GLOSS.

FLEET colors retain their lasting beauty without fading, darkening or deteriorating from sunlight. Because scum, dirt and algae are easily washed off with water and detergent, abrasive cleaners which destroy gloss are not needed. Frequent repaints are therefore eliminated.

FLEET

MADE WITH URETHANE
TO LAST 3 TIMES LONGER.



"Easy to Use"
RUBBER
IN A CARTRIDGE

Stops water leaks in hull and deck seams, bedding of keels, chines, and windows. Sticks to wood, fiberglass, steel, aluminum. White color. Caulking gun cartridge \$1.80, pint \$2.45, quart \$4.75.

Send for free color card and catalog.

STAY-TITE PRODUCTS CO., INC., CLEVELAND, OHIO 44104

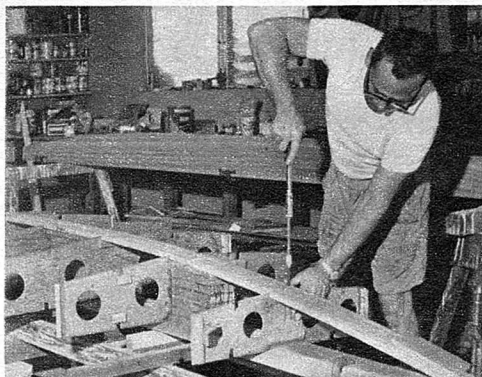
Paints, Compounds, Adhesives since 1908

Fun Fish

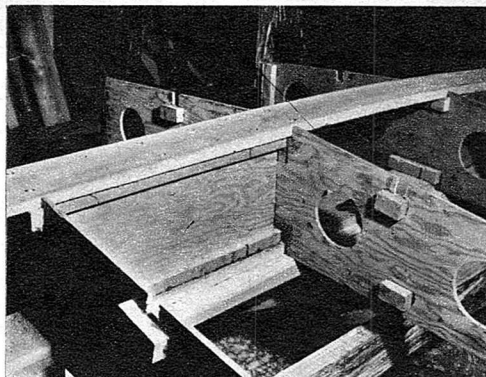
By Hal Kelly

A 14-foot sailboat you can build in 50 hours for less than \$125 including the sails. She'll plane in a ten-knot breeze!

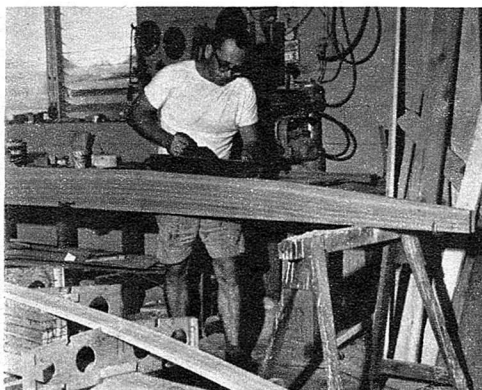




GLUE AND SCREW the keel to the transom and the ribs, two screws to each station.



CENTERBOARD WELL is attached to deck beam, then ribs and keel are fastened to it.



ROUGH-CUT cedar sides to approximate the shape of the hull before attaching to ribs.



FINISH sanding with coarse sand paper wrapped around a 30-in. length of furring.

FROM stem to stern, Fun-Fish is just what her name implies. She makes small boat sailing a real joy. Easy to handle, she will plane in even a slight breeze. She also takes kindly to car-top travel; is stored easily during off-season.

The hull, with a Fiberglas bottom, can be built for less than \$80. If you make your own sail, Fun-Fish can be yours for well under \$125. This is about one-third of what a comparable ready-made boat would cost.

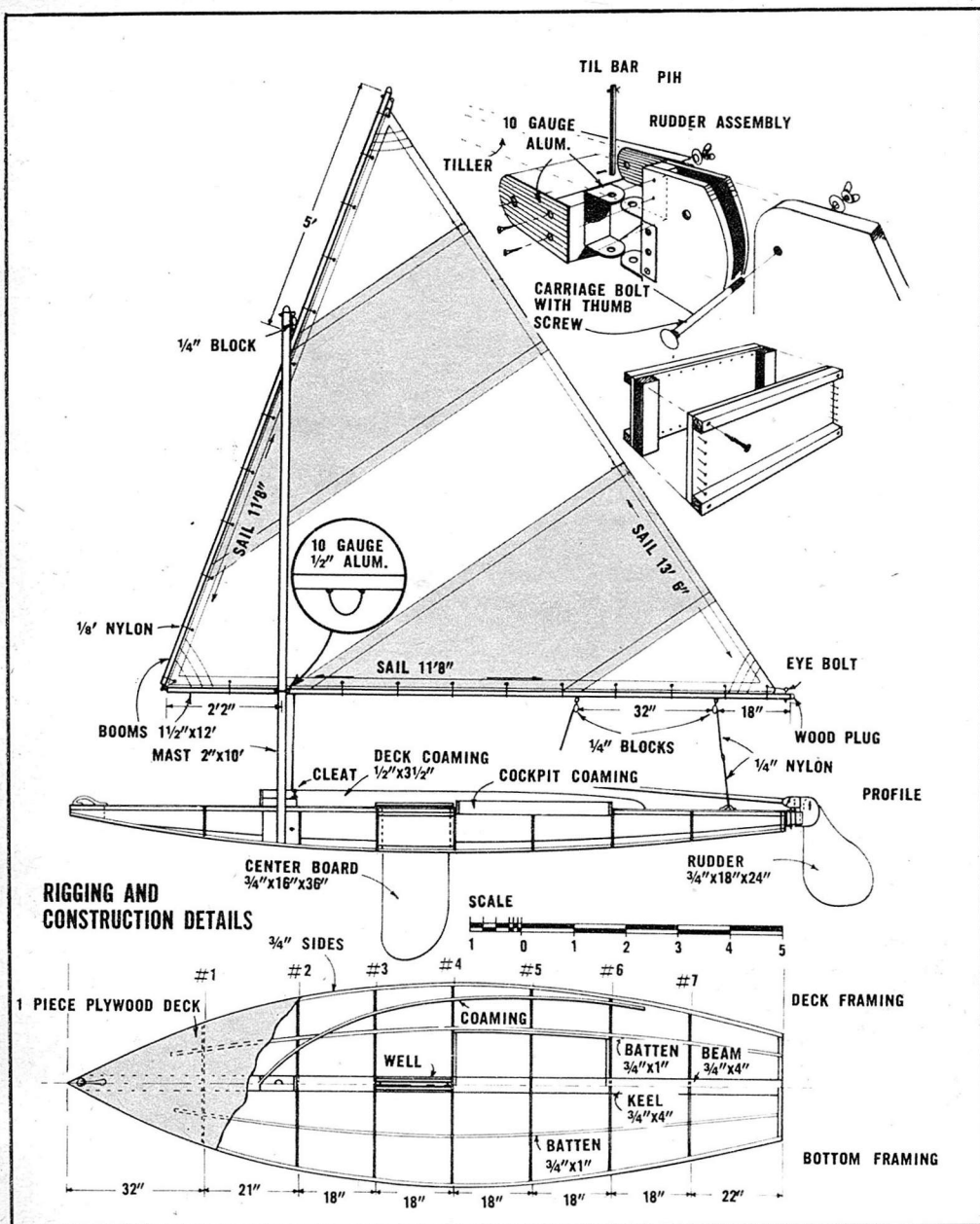
Before starting construction, review each step carefully, making sure that all details are clear to you. This will save time and wasted material. Sides and framing are white cedar. Deck, bottom and ribs are all of quarter-inch exterior or marine plywood.

It's a good idea to work with full-size paper or cardboard templates of the ribs. Actually, you need make templates of only half of each rib, since the template can be flopped to give you the other half.

Use hand tools to notch the ribs. The lightening holes can be cut best with a drill press and circle cutter. While these openings won't save much in weight, they will reduce the incidence of dry rot.

After cutting and notching the ribs, glue and nail all blocks in place. All nails used in this project are $\frac{7}{8}$ -in. No. 16 Monel Anchorfast nails. Battens, deck beam and keel will be fastened to these rib blocks.

Set up your jig at a comfortable working height, about 30 inches off the floor. The jig can be a single 2x6, approxi-



mately 12 ft. long, used as a strongback. Mark rib positions and cut the opening for the centerboard well before clamping the deck beam to the strongback. Let the beam extend at each end.

Glue and screw the ribs and transom to the beam, using two 1 1/2-in. No. 7 zinc chromate flat-head screws to each station. The transom is 3/4-in. cedar with

quarter-inch plywood forming the back.

Install the centerboard well next. This is glued and screwed as a unit and fitted between ribs two and three. It must be flush with the deck beam and with the bottom of the groove for the keel. In constructing the centerboard well, make it at least 1/8-in. wider than the centerboard.

If you have a bit long enough to go through the mast block and the deck beam you have it made. Otherwise, you'll have to tackle the mast block in segments, drilling through each layer and then gluing the pieces together to build up the block to the proper thickness. If you plan to use a two-inch mast, make the hole about $2\frac{1}{16}$ -in. in diameter. After the glue has dried, fair for the keel.

The keel is attached next and is fastened to the transom and ribs with glue and countersunk screws. Start from the transom and work forward. The keel should be fastened also to the centerboard well and the mast block.

If you have set up the ribs straight and true, the sides should present no

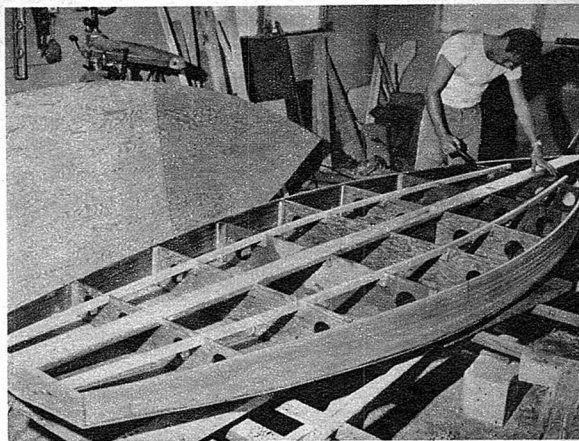
PLANS AVAILABLE

Large-scale plans for building Fun-Fish are available. They are complete with text and additional large photos and drawings. To get your copy, send \$5 to Mechanix Illustrated Plans Service, Fawcett Building, Greenwich, Conn. 06830 (Zip Code). Please ask for Plan No. B-3-64, Fun-Fish, when ordering. Be sure to remit payment with your order.

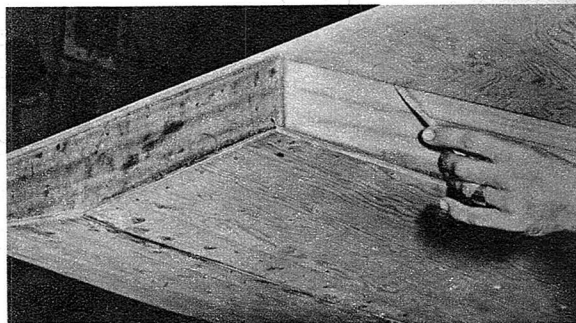
problem. They are cut from half-inch white cedar. Mark off the profile of the hull and rough the sides to shape. You will have to fair some of the blocks at the rib ends for a good fit. Glue and screw the sides in place, using two or three screws for each rib end.

The bottom battens are installed next and run from the transom to about six inches forward of rib No. 1. They are glued and screwed to the blocks attached to each rib.

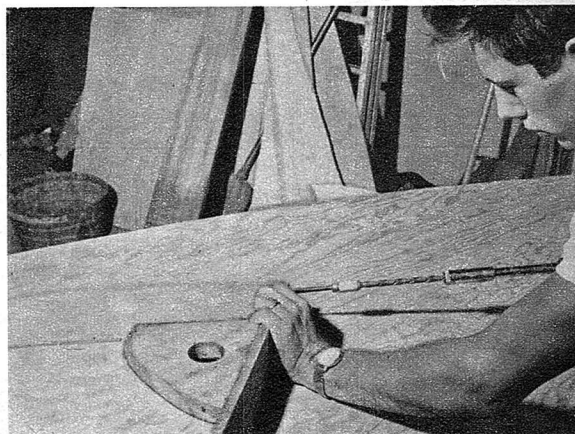
Using an electric planer or a hand plane, fair the keel, battens and sides. Check with piece of plywood to make sure that the bottom planking will contact all framing elements. Finish-sanding can be done with a 30-in. length of furring with coarse sand paper wrapped around it. You will note that the keel has a slight V to it. This and



FAIR the framing and varnish the interior of the hull before putting the deck down.



PLYWOOD decking is attached temporarily to facilitate outlining shape of the hull.



COAMING is cut to length and bent in jig before being glued and screwed to decking.

the sides receive most of the fairing.

The bottom is made in two pieces and butted at a slight angle on the centerline of the keel. Begin with a 4x14-ft. sheet of plywood (the size requires a special order) and cut it in half lengthwise. Screw one half in place temporarily and draw the outline of the hull. At the same time, mark all points of contact with the framing. Remove the planking and trim to shape. Cut out the centerboard well and drill pilot holes for nails, about 2½ inches apart along the battens and keel, two inches at the sides. This will help you complete the nailing before the glue dries.

Turn the hull over and place it at a workable height, using padding so as not to mar the bottom. Glue and screw the deck battens in place. The whole deck should be level so you may have to fair a bit.

Lay the 4x14-ft. sheet of plywood on the deck and secure temporarily with one screw at the bow and one at the transom. Draw the outline of the hull on the plywood, then remove the planking and trim it to shape. Carefully mark off the cockpit, centerboard and mast holes and make your cuts.

You may find it a timesaver as well as good construction to attach the coaming *before* fastening the decking in place. About three days before you reach this point you should have cut the deck coaming (half-inch mahogany) to size, soaked it in hot water and set it in a simple jig to bend it to shape. After three days in the jig (leave it in the sun to speed things up), the coaming will hold its shape pretty well.

Glue the coaming to the decking and screw-fasten from the underside, starting from the mast deck block. This is simpler and stronger than trying to fasten it in place after the deck is down. Screw the two sections of coaming together where they butt.

Before attaching the deck, varnish the inside of the hull. It will be difficult to get at most of these areas once the deck is down.

You are now ready to attach the decking. Mark off the positions of the deck battens and drill pilot holes. The battens are best pulled to the decking with ⅞-in. screws spaced every eight

inches. Nail the decking to the sides, deck beam and transom, using a nail approximately every 2½ inches.

Saw out the deck beam between ribs four and six to open up the cockpit. If you haven't already done so, cut rib five to shape as shown on the rib drawing. Glue and screw the half-inch mahogany coaming in place around the cockpit.

All nails and screws used to attach the deck should be countersunk and the holes filled with wood filler.

To Fiberglas the bottom, turn the hull bottom up on a pair of padded saw horses. Lay your cloth on the bottom and trim to rough shape, letting it overhang a bit at the sheer line. Remove the cloth and coat the bottom with resin. You can mix the color right in with the resin, doing this before adding the hardener. After the hull has received a coat of resin, lay the cloth in place, apply more resin to cover and roll smooth with a paint roller. With scraps, trimmed from the front section, fill in any side areas not covered, overlapping the cloth.

Give the Fiberglas a day to "kick off." Then, with a disk sander, smooth off any ridges where the cloth overlaps and sand along the edge of the sheer to trim off the excess. Also sand out the centerboard well.

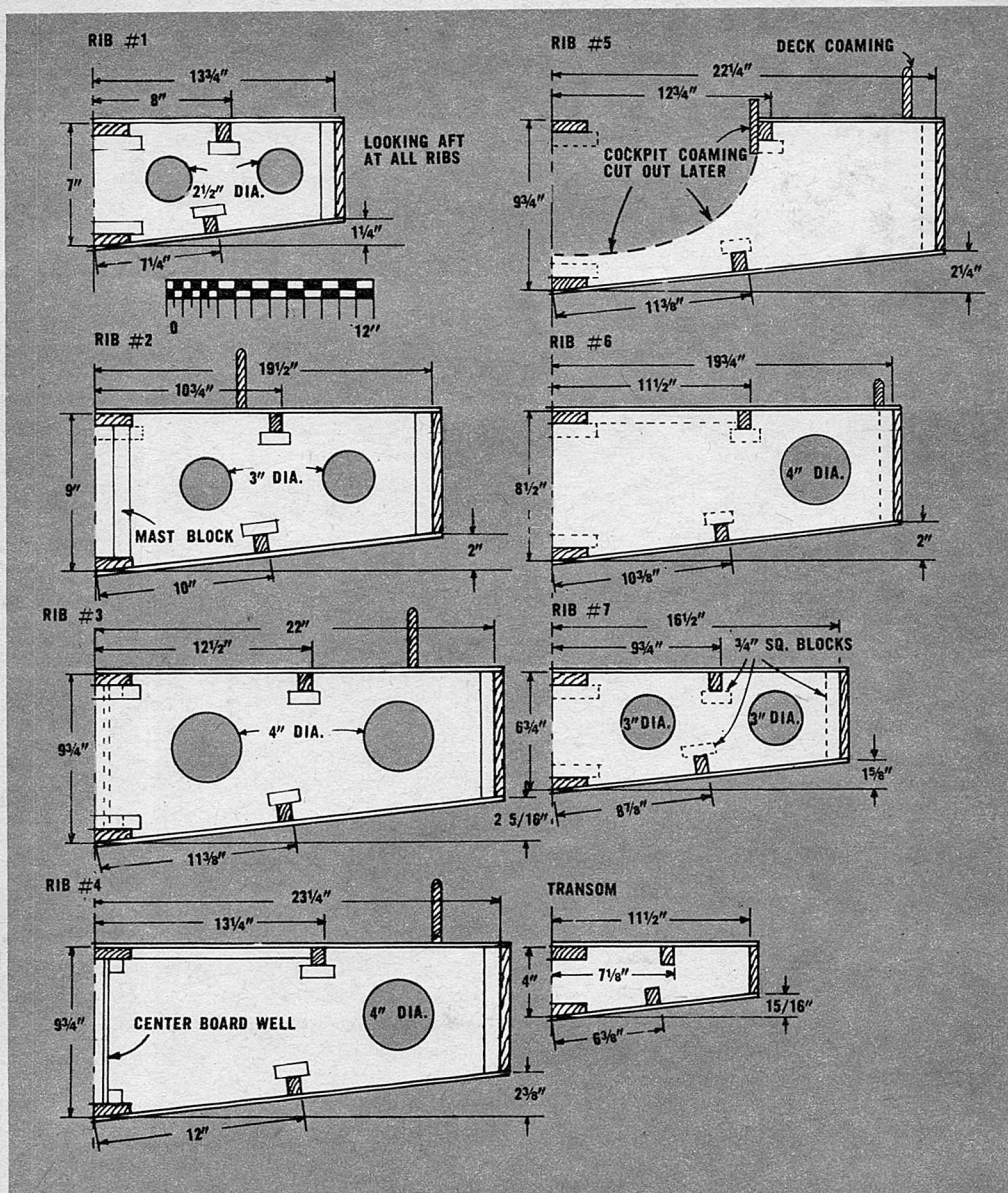
Apply another coat of resin and roll smooth with a fresh paint roller. (It's a lot easier to buy an inexpensive roller for each application of resin than to try to clean the old one.)

Right the hull and give the coaming four coats of varnish. Then give the deck a coat of white Firzite. The deck of Fun-Fish was painted yellow to match the yellow in the sail; red hull.

You can choose your own colors, but we recommend that you use one of the new non-slip deck paints. With most other paints, a wet deck can be as slippery as a porpoise's back.

Cut the centerboard and rudder to shape from ¾-in. mahogany, planing the bottom sections to a sharp edge. Give them four coats of varnish for a long-lasting finish.

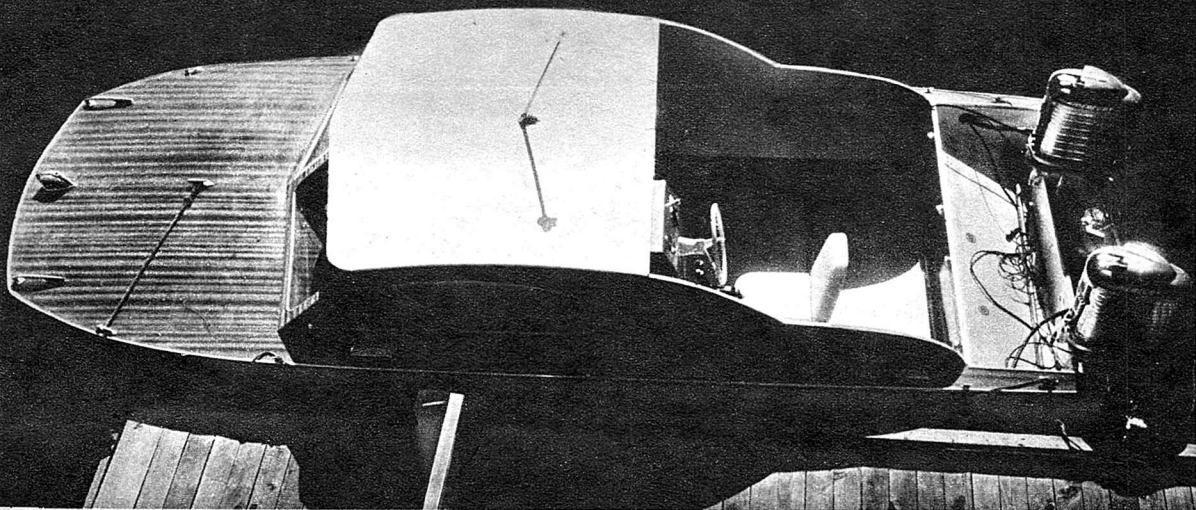
The rudder is pivot-mounted so it will flip up when you hit an obstacle. The rudder hinge is made of 10-gauge aluminum.



The sail can be purchased ready-made or you can make your own out of sail drill, which is available at most dry goods stores and comes in 36-in. widths. Wooden poles for your mast and booms can be bought at the lumber yard if you don't choose to invest in aluminum.

Check the profile drawing on page 22 for the sail dimensions and rigging details.

If you plan to use your Fun Fish in a rough-and-tumble fashion you might want to either skip the cockpit entirely and fasten down a rubber mat or rubber-painted surface on the deck. An alternate suggestion would be to build a shallow cockpit and fiberglass it to make it waterproof. In either case, a drain plug would have to be installed in a corner of the deck near the transom for pouring off water that might seep in. •



Eighteen ft. long with eight ft. beam, cabin and cockpit are fully six ft. six in. wide.

Aqua Cat

This unusual boat features extra width, space and stability.

By Glen L. Witt

THE AQUA CAT is an 18' 2" outboard catamaran with a whopping 8' beam. Just wide enough to trailer on the highways, provide exceptional stability and extra roominess in the boat. The wide flat cockpit area is ideal for skin divers, fishermen, or anyone who carries a lot of gear on limited cruises. (Who doesn't?)

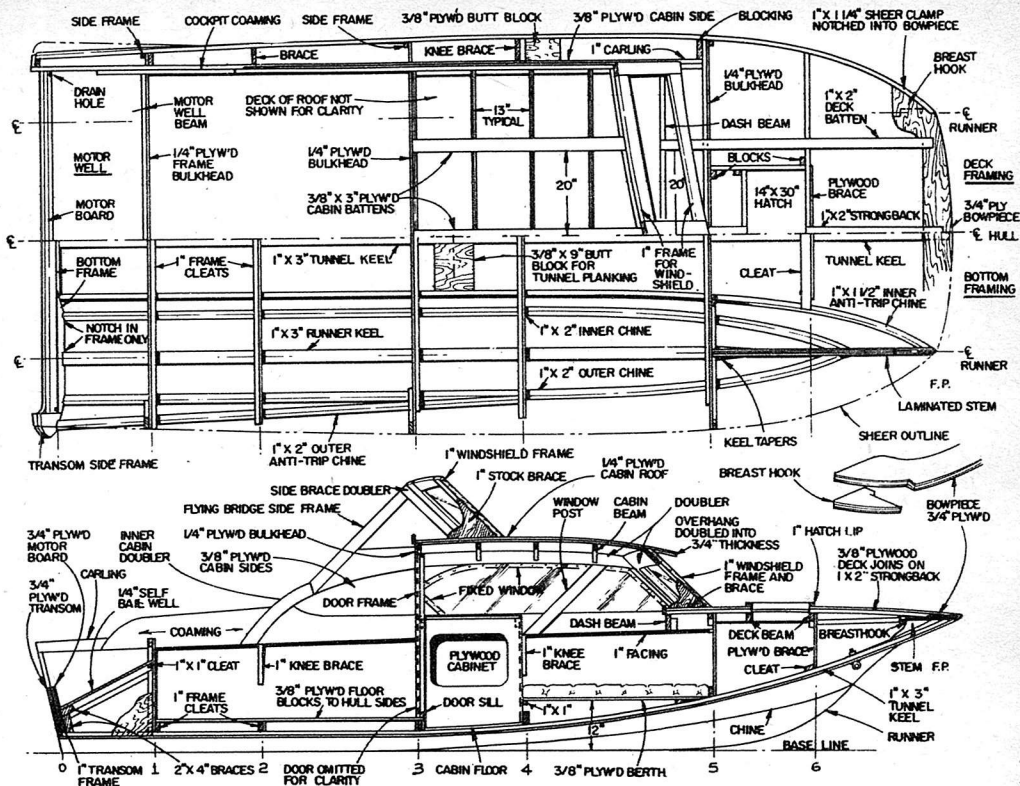
The catamaran type hull is especially good in a chop. The twin hulls smother the rough stuff in the tunnel and make for a smooth comfortable ride. For best results twin motors should be used. You can attempt to use a single, smaller motor but your performance will never be tops, as it will with the twins. One of the big advantages of "cats" is the ability to carry the larger motors to provide speed with safety in choppy waters.

Catamarans are especially highly stressed units due to the twin hull structure. To eliminate much of the structural problems bulkheads have been used for the frames as ordinary sawn type frames tend to fracture under the stresses. Needless to say, first grade

lumpers should be used throughout. Various types of lumpers can be used, but the better grades such as white oak, or Philippine mahogany (dark red) are preferable to the softer woods. All fastenings should be bronze or galvanized iron. Brass is weak and tends to fracture in a boat of this type. Plywood should all be of the exterior type with the planking preferably being the solid core or marine type. All joints throughout the construction, exterior as well as interior, should be glued with a hard setting glue either the plastic resin or rescorinol type. The latter is the only one that should be used for gluing oak that will be in salt water. Whenever the term "nails" is used, reference is made to the ring type boat nail such as "Stronghold" or "Anchorfast."

Plans and Patterns as well as Frame Kits, Fastening and Fiberglass Kits are available from "GLEN L" at the address noted in the box that accompanies this article.

Each of the frames of the hull are actually bulkheads cut from 1/4" plywood



framed in 1" material molded in width to about 2½". Lightening holes are used in each of the bulkheads as shown. In assembly coat the framework with glue and nail to each bulkhead with 1" nails. After assembly notches for the various longitudinals are cut in the frames.

The transom is made from ¾" plywood framed in 1" material. The notches for the longitudinals are cut into the framework only. Note that the bottom frame and transom plywood must be beveled 12° to allow for the angle of the transom as it will mate to the bottom planking. Completely between the framework of the transom an additional lamination of ¾" plywood is used as reinforcement of the motor area.

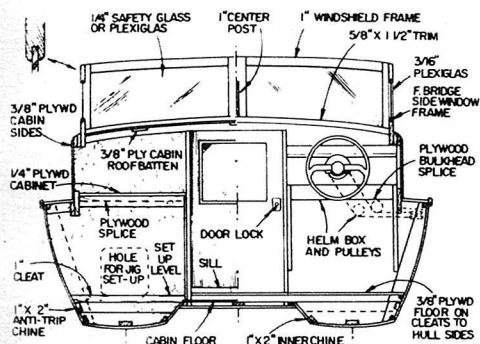
The two stems are made from two laminations of ¾" plywood, as is the bow piece. This latter member is constructed so that one lamination of the ¾" plywood rests directly on the stem while the second lock notches around it to form a breasthook. In assembly coat the laminations of plywood with glue and fasten with 1½" No. 8 screws.

Three transom knees are used on this catamaran type boat. Two are placed in position on the building form while the third is not fastened in place until the hull is righted. The former knees, on the runners, are fabricated from two laminations of ¾" plywood, glued and screwed similarly to the stem and bow piece.

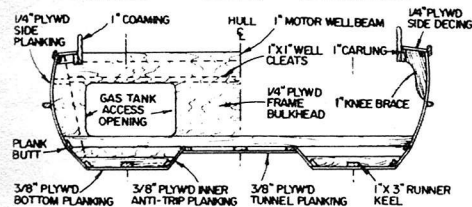
The hull is intended to be built bottom side up. Each of the bulkheads are mounted on longitudinal stringers. The construction of the building form may vary considerably, but it is imperative that the bulkhead frames be accurately spaced and centered on the longitudinal setup members. These setup members must also be securely held in place level both lengthwise and athwartships. The stems are fitted between the frame members of the No. 5 frame and butted to the plywood bulkhead. The bow piece and stems are best put on as an assembled unit and the bow piece blocked to the proper height. The position of the transom is governed by the two transom knees that extend from the No. 1 bulk-

LARGE-SCALE PLANS

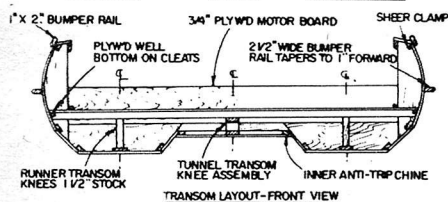
are available: \$24 for Plans, Patterns; \$150 FOB for Frame Kit, Plans; \$28 for Fastening Kit (with bronze nails, screws, \$76); Fiberglass Kit, bottom only, \$46 FOB (for bottom, sides and transom, \$80 FOB). From Glen L. Marine Designs, 9152N Rosecrans, Bellflower, California 90707.



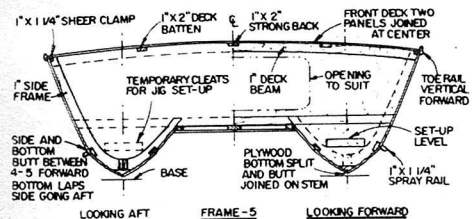
LOOKING AFT FRAME-3 LOOKING FORWARD



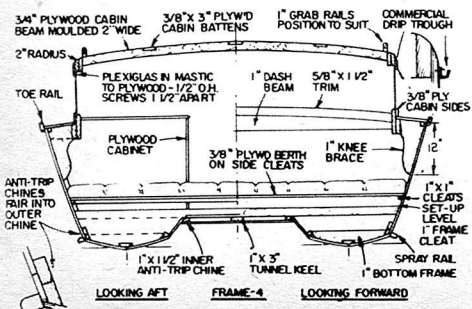
LOOKING AFT FRAME-2 LOOKING FORWARD



TRANSOM LAYOUT-FRONT VIEW



LOOKING AFT FRAME-5 LOOKING FORWARD



LOOKING AFT FRAME-4 LOOKING FORWARD

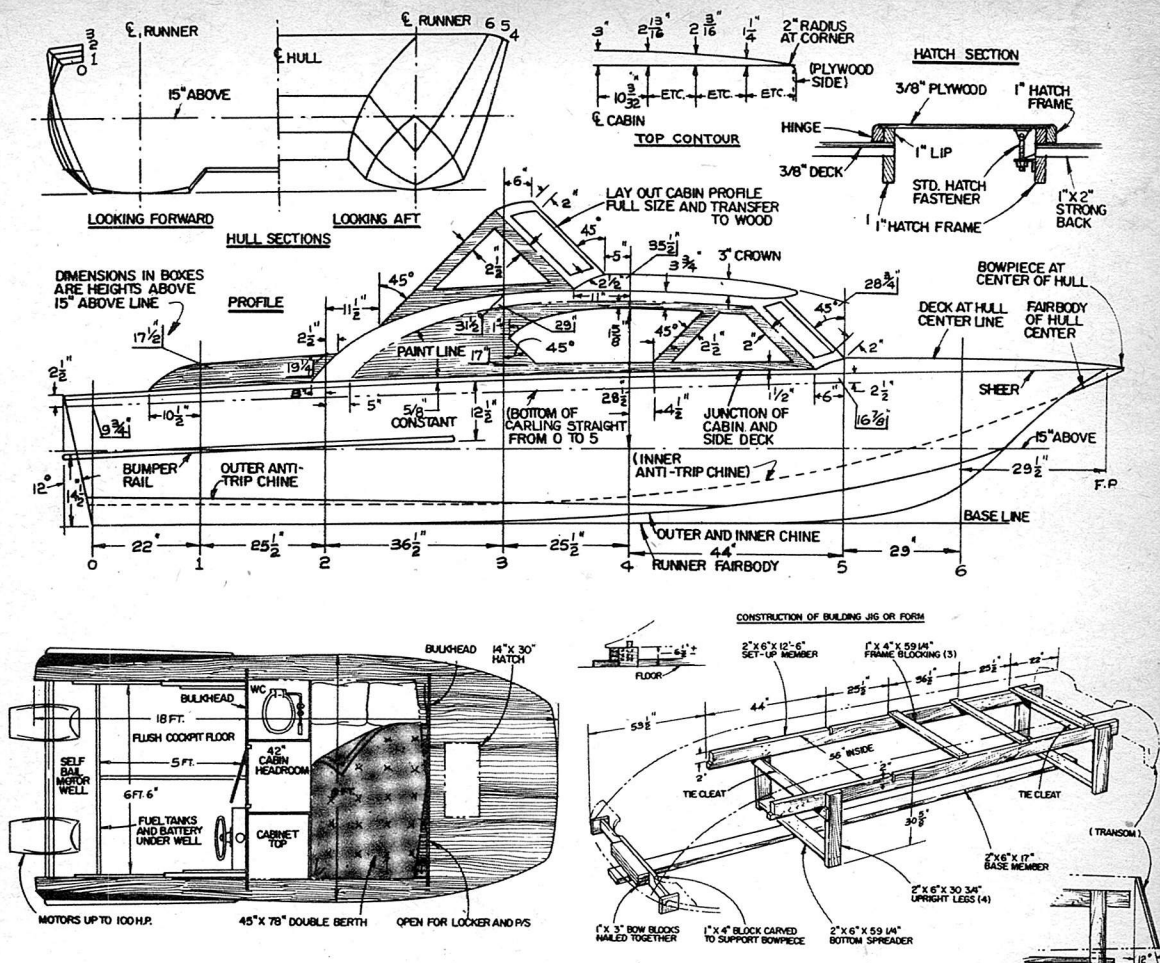
head on each of the runner keels. After all of the members are in place they should be securely braced to each other or the building form to prevent movement.

The longitudinals are next sprung in position. Notches for the landing point for each must be beveled so that the members will mate securely. The runner keels are 1" x 3" in full length from the transom, where they bolt to the transom knees, to the notch in the stems. The outer and inner chine logs are 1" x 2" members sprung around the hull and fastened into each of the notches in the bulkheads with 2" No. 10 screws. The 1" x 2" antitrip chines extend only from the transom to the bulkhead at No. 4 and fasten into the bulkhead notches in similar fashion. To make the required bend it is imperative that the sheer clamps be set in vertically from approximately midship forward.

All of the framework must be faired or beveled so that the planking skin will mate to all members. Considerable care must be taken to be sure the surfaces are smooth, even, flowing lines. Any changes that could cause humps or bumps in the finished product cannot be tolerated if the end result is to have a pleasing appearance and performance be as it should.

The 1/4" plywood side planking is preferably put on in full length sheets although shorter panels could be butt joined together. Fitting this panel need not be carefully done except in that area along the chine about 12" aft of No. 5. In this area the bottom and side planking will join in a butt joint. Thus the side planking must be fitted to the center of the chine in this area. After fitting the panel, coat all of the mating areas with glue and fasten with 3/4" No. 8 screws along the chine and sheer. At the transom and stem use 1" No. 8 screws well staggered and spaced about 2" apart. The opposite side is put on in like fashion and then the 1/4" plywood antitrip areas in the aft section of the hulls installed.

The inner antitrip planking is also 1/4" plywood preferably in full length but note that this planking will be installed and then the antitrip inner chine placed against it. This inner antitrip chine is precut with one edge of the



1" x 1 1/2" member beveled 40° to enable it to mate to the inner antitrip planking without further beveling. After coating this surface with glue fasten it through the planking into the member with 1" No. 8 screws spaced about 3" apart.

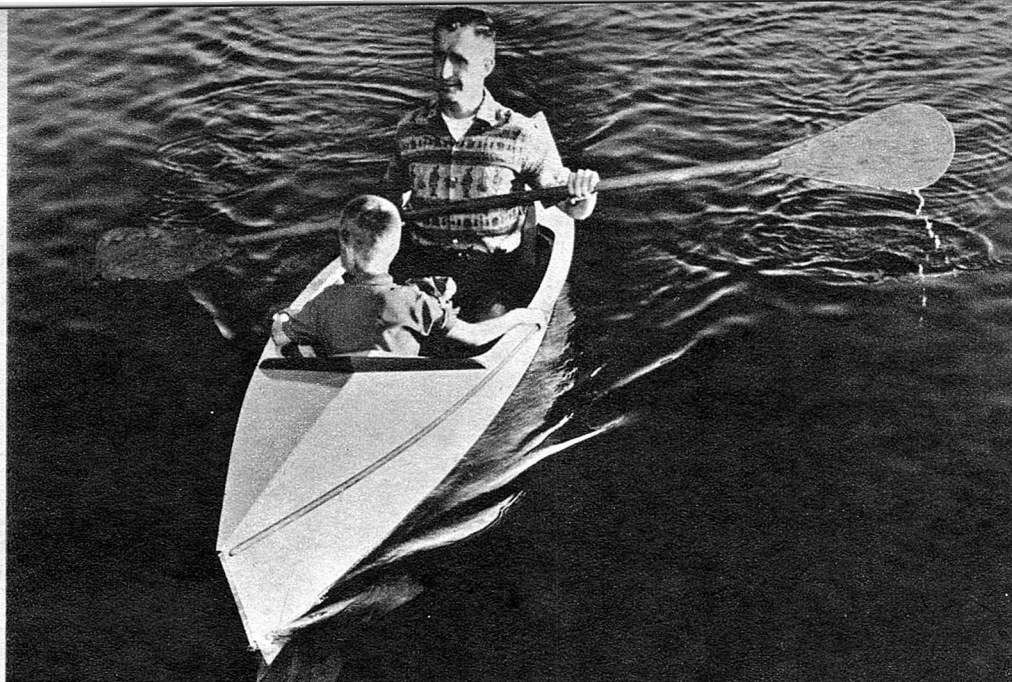
After trimming all of the planking along the inner and outer chines the 3/8" plywood bottom runner planking is installed. They are in full width from chine to inner chine with the portion forward of a point midway between bulkheads No. 3 and No. 4 being split to enable the two halves to fold around the stem area. Fit, glue and fasten the panel similarly to the sides except use 1" screws along all longitudinals and 1 1/4" No. 8 screws at the stem and transom area.

Next fit the tunnel keel, the 1" x 3" member that extends from the transom to taper and end on the bow piece on

the center line of the boat. The tunnel planking in the forward portion is put on in two halves joined over this member. In the aft section the tunnel planking may be in full width. The joining of the fore and aft sections is by a simple butt joint over a backing or butt block. Glue and fasten the planking similarly to that done for the bottom runner planking.

Lighting and fittings should be per U.S. Coast Guard restrictions. Controls should be brought to the helm position preferably on the starboard side of the boat. Steering can be with the conventional wire rope and pulley system although the single push-pull cable type is preferable and more reliable.

Have fun building it as the self satisfaction you receive and the continuing enjoyment will repay your labors many fold. •



Roomy enough for an adult and one child, this sturdy kayak can be built for about \$100.

Plyak

*Here is an excellent plan for an
11-ft. 3-in. plywood-skinned kayak.*

By David Jordan

Plan revisions by Edwin Monk

TO THE ESKIMO, a kayak is more than a boat. To him it's more like an essential garment. When he's laced into his whale bone and walrus-hide craft, he's ready for anything in the way of weather, water or what-have-you.

To most of us, however, a kayak is for venturing. It's perfect for poking around uninhabited islands, exploring the bends of a lazy, winding river or just breaking the peaceful surface of a placid lake at sunset.

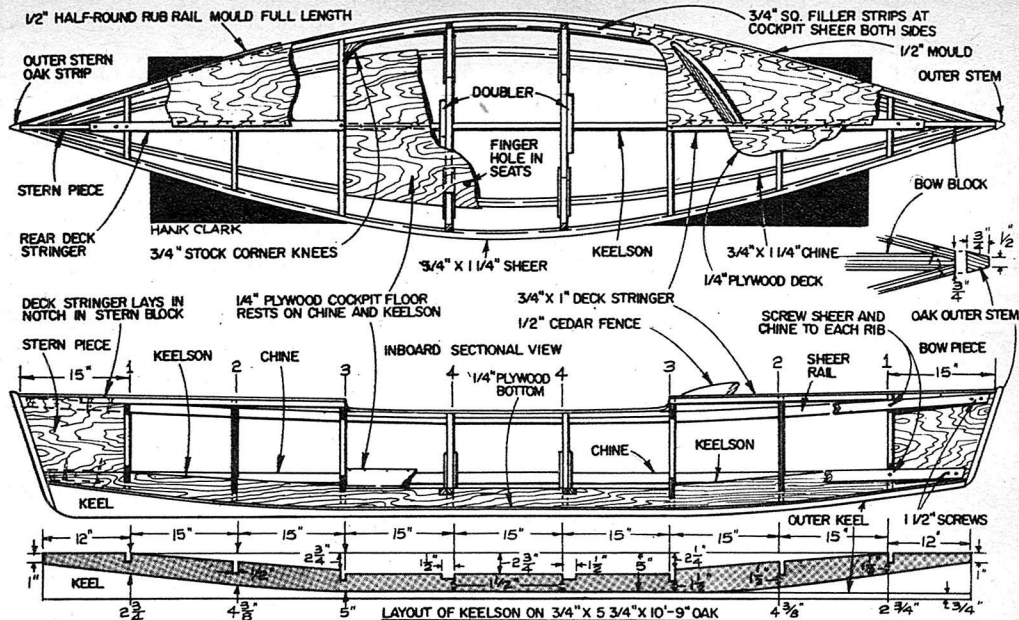
Since whale bone and walrus-hide are rather hard to come by, this "Plyak" has been designed to give the pleasure of a kayak in a boat made from readily available materials. For anyone who has built a boat before, the Plyak should take about 40 man hours to complete. Cost will total around \$100 depending on local conditions. When launched, the Plyak will be an excellent "one-man" boat with possibly one child to "crew."

Both ends of the boat are exactly alike except for the keel, so corresponding frames at both bow and stern are identical.

Begin by cutting out two each of frames 1, 2, and 3 from $\frac{1}{2}$ " EXT-DFPA• A-C plywood. Make the No. 4 frames as shown from oak or other hardwood according to the plan, with $\frac{1}{4}$ " plywood gusset plates on each side of each joint. The plan shows $\frac{3}{4}$ " thickness for No. 4 frames as this is readily available; however, $\frac{1}{2}$ " thickness should be used if it can be obtained. Fasten gussets with waterproof glue and nails or screws. Clamp until dry. Use waterproof glue on all joints in the boat.

Select a good straight 12' 2x4 to use as a strongback to build the boat on. Set the 2x4 on edge on two sawhorses by nailing a scrap or cleat of $\frac{3}{4}$ " plywood to the 2x4 at each place where it crosses the sawhorse. Then nail the cleats to the sawhorse. This holds the 2x4 securely during building.

Establish a datum line by drawing a line 1" down from the top of the 2x4 on both sides. Make certain these lines are straight. Make a mark to locate one end of the boat near one end of the 2x4. Mark the other end at 11' 3". Lay out the



frame stations as shown on the plan at 15" intervals. Lay out the stations starting at each end and working toward the middle.

Now fasten the stem pieces to the keelson with 2" f.h. brass screws and glue. Also fasten the two No. 1 frames to the pieces and keelson with screws and glue. Now attach the other frames to the 2x4 strongback as shown in the detailed drawing. On the two No. 4 frames nail a temporary brace across the upper arms of the frame so that the upper edge of the brace is 1" below the datum line. See the frame dimensions drawing. Nail through the brace into the 2x4 to locate the frame.

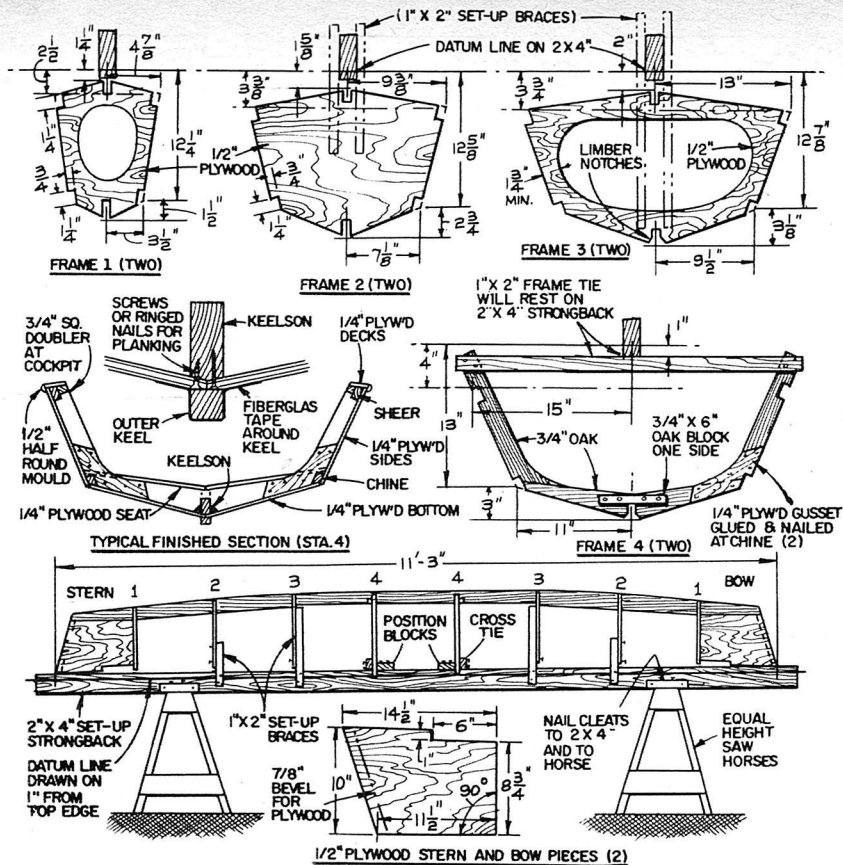
When all frames (except the No. 1 frames) are fastened to the strongback set the keelson assembly in place to make sure that all frames are located properly. All joints between keelson and frames should fit up snugly. Stem pieces should just touch the strongback. Remove the keelson and daub glue in all the frame joints. Replace keelson. Toenail stem pieces to the center of the strongback. You can screw the keelson to the frames, but if the fit is good, glue alone is good enough.

Next cut strips for chines and gunwales. Clamp a chine strip to the No. 4 frames, bend it around the other frames and clamp it to the stem pieces at each end. Scraps of wood nailed across at an angle from the frames to the keelson help keep the frames square with the

keelson during the chine fitting operation. Mark the bevels that must be cut on the frame edges. Remove the strip and cut the bevels with a dovetail saw. Bend strip in place again, check fit of all notches and correct as required until you get a good fit at all frames. Now mark and cut ends of strip, cut and fit carefully so strip just reaches the dotted line on stem and stern piece. See detail A-A on drawing. Now fasten on the chine strip with glue and 1½" f.h. brass screws. Put the screws a little below the center of the strip and countersink them well so when you bevel off the strip to match the angle of the frames your cutting tools won't hit the screw heads. Now fit the other chine strip and the wale strips the same way.

Next bevel the chine and gunwale strips, the stern piece, the keelson, the stem piece and the edges of the frames so the plywood planking will fit. A draw knife does a good job on the strips and a block plane works well on the frame edges and stem pieces. A belt sander really speeds along the job, too, if you can get your hands on one. Check your work as you go by holding a straightedge against the keelson and chine strip. The bevel on the keelson and chine should conform to the straightedge and the straightedge should slide past the frames, just barely touching.

Now you're ready to put on the plywood planking. If you use 4' x 12' plywood you needn't make any splices. If



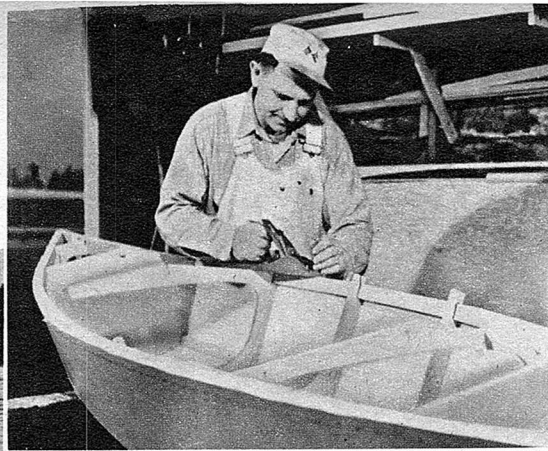
4 x 8-foot panels are used you'll have to splice them. Use A-A grade Exterior type 1/4" plywood in either case. Put on the bottom first. If splices are needed plan to make one at each end of the bottom pieces where the span isn't so long. Lay a sheet of plywood on one side of the bottom of the boat so the edge is along the center line of the keelson. Clamp it in place near the middle and bend it over the bottom. Have someone hold it down while you mark along the chine and ends of the keelson. Note that because of the curve in the keelson you'll have to trim a little from the keelson edge of the planking to make it fit exactly. Cut out the bottom pieces leaving yourself a little extra. After the bottom is fastened on you can easily plane it off to fit perfectly. Fasten the bottom piece on with 3/4" f.h. brass screws or ring groove boat nails, and glue.

Now do the same thing on the other side of the bottom except that you can plane a slight bevel along the keelson edge of the planking to make it fit up well to the piece already on. If you have to splice do it after the two bottom pieces are fastened on. Cut a scrap of 1/2" ply-

wood about 3" wide to fit between the keelson and chine strip at the place where the splice will be. Fasten this strip to the inside of the planking with screws and glue leaving half stick out to fasten the spliced-on piece to. Cut the piece for the splice from planking plywood and fasten it to the chine, keelson and 1/2" splice backing with screws and glue. Plane off edges of planking even with the chine strips.

Now put on the sides just as you did the bottom. If you have to splice, do it in the middle this time. Put on the four pieces of planking, overlapping the bottom planking, then fasten the 1/2" plywood splice backing on last. Make the backing piece 4" wide and long enough to fit between the chine and gunwale strips.

Now cut the boat loose from the strongback and turn it over. Take off all the strips that held it to the strongback and cut off the tops of the No. 4 frames flush with the top of the gunwale strips. Cut and screw on the gunwale fillers and cockpit corner knees as shown in the detail drawing. Cut the deck stringers and fasten them in. Bevel the deck



Frames are carefully beveled to take the bottom, sides and top planking as shown. Below, two-man crew launches Plyak after hauling it to water on lightweight trailer.



stringers and the edges of the gunwale strips and frames to take the decking. Before putting on the deck planking you might want to fill the watertight compartments formed by the solid No. 2 frames with liquid foam to make them waterproof. If you don't do this, give the whole interior a couple coats of wood sealer. Now put on the deck planking, just as you did the bottom and sides. This planking overlaps the side planking and ends at the after edge of frame No. 3. Cut some strips to fit the narrow areas alongside the cockpit and put them on to finish up. Make or buy a piece of $\frac{3}{4}$ " or $\frac{1}{2}$ " half round hardwood to make a rub rail running all along the outside of the boat at the gunwale.

To make your boat really waterproof and tough you should lay fiberglass tape over all the joints in the planking. Put a strip down the centerline and fasten the keel in place with long brass screws before the resin sets. If you have a router rout out a channel on the edge of the keel next to the planking with a core bit to let the keel fit better against the planking.

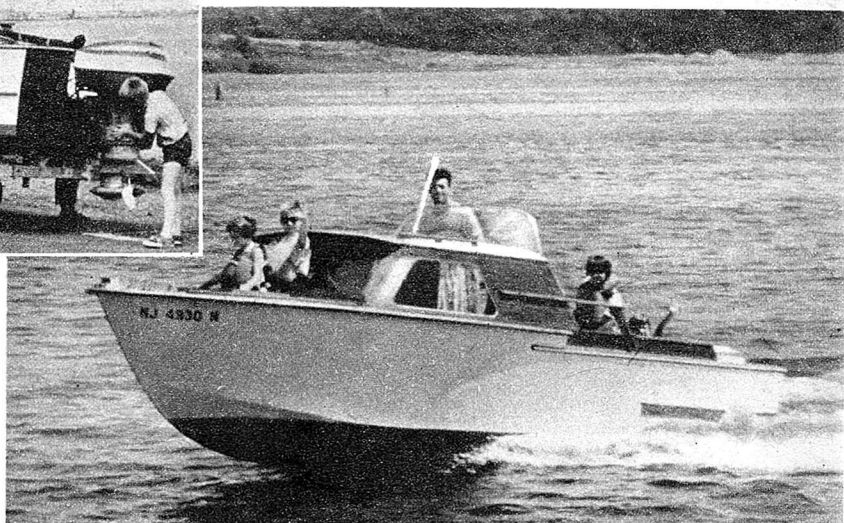
LARGE-SCALE PLANS

are available for building this boat. Please send 25¢ to American Plywood Association, 1119 A Street, Tacoma 2, Wash. Specify FB Plyak, Plan #95.

Cut out the floorboards and the back rest from leftover planking. Make a double paddle using the plan shown and set the blades into slots cut in the ends of a $1\frac{3}{8}$ " closet pole. The over-all length of the paddle should be about 9'. Just set the back rest in place on the floor boards leaning against the afterdeck. It will stay put this way when you lean against it. And it's easy to adjust and take out when not in use. Finish your boat with a coat of sealer and two coats of good marine enamel. A small eye fastened to the bow comes in handy for fastening on a bow painter. The finished boat will weigh around 60 pounds. It will carry two adults, but the cockpit is rather crowded this way. One adult and one child make the best crew. •



Roomy Roamer has beamy 7'-9" width plus 5'-2" headroom in the cabin. There are 2 bunks in cabin plus aft seats which can be used for sleeping. Top speed is about 35 mph.



Roamer

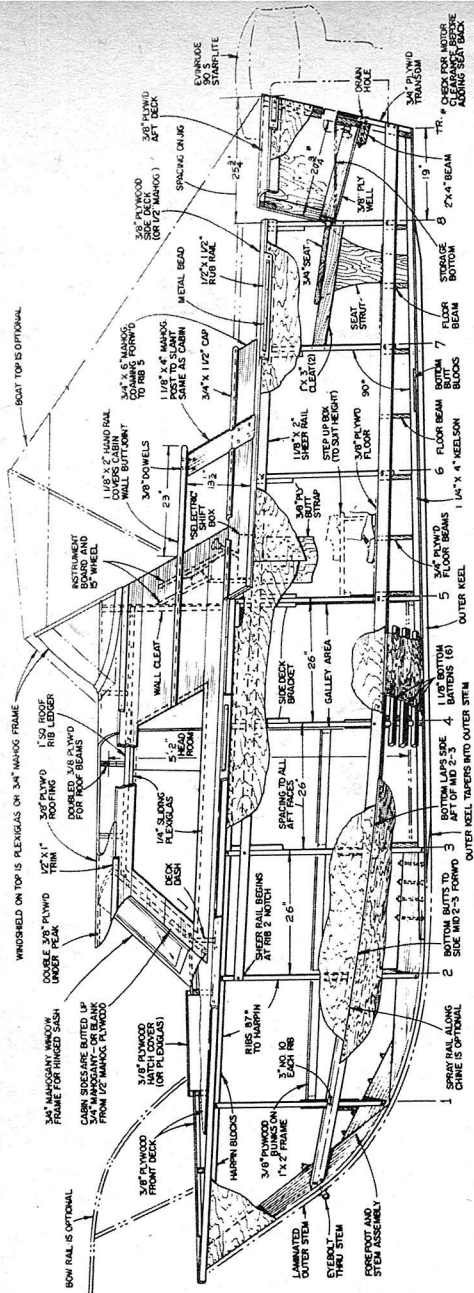
This 20-ft. outboard cruiser has built-in building ease.

By Henry Clark

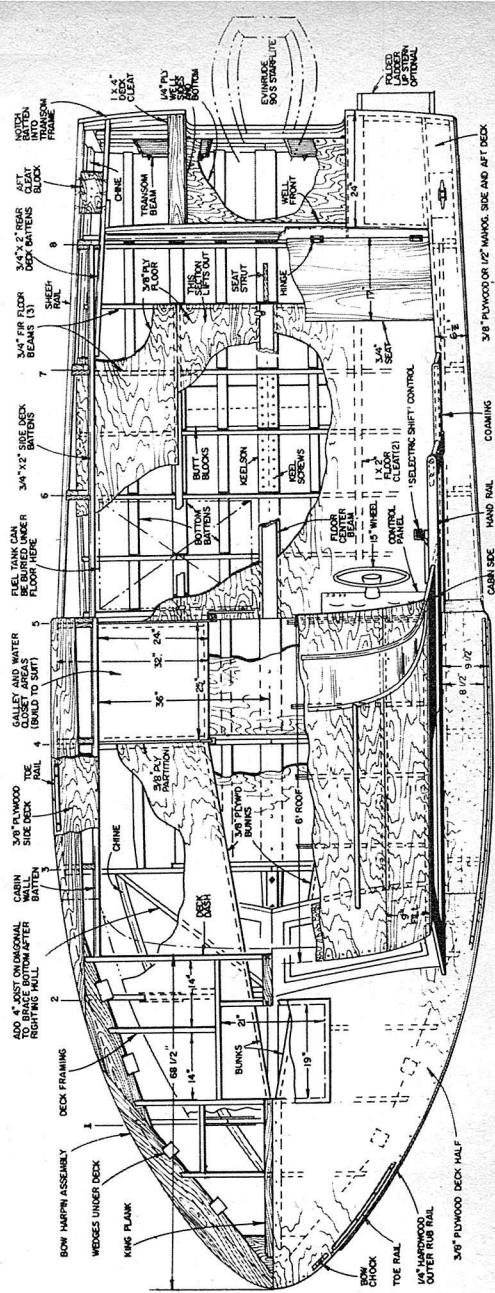
ROAMER WAS DESIGNED to be a bigger, faster, and vast improvement on our highly successful 16 ft. Barnaby. Every bit of performance and style that can be built in by the average handy man, is offered in Roamer. The builder, Bernie Kasha, is a man with four children, and will live much of the time on the water in her; and they'll ski behind her when the mood hits. When the men wish to fish, Roamer will crest the big rollers offshore to the deep. With the 90S Evinrude clamped on the transom, she will skit across any size chop on her semi-round bottom. The builder has trailed her south this summer on a Tee Nee 2400 tandem trailer, for skin diving, camping, and exploring. His building time of three months spare time, paid off handsomely.

After assembling all ribs, Roamer may be built right on any flat floor, with no jig needed. The big deck harpin is the forward platform on which is stood the first five ribs, as well as the stem and forefoot. The last three ribs and transom are secured to two lengths of 2x4" plus 3/4" when stood on edge. The 1x2" ties across rib 6, 7, 8 are nailed to the 2x4" rails, spaced as shown on draw-

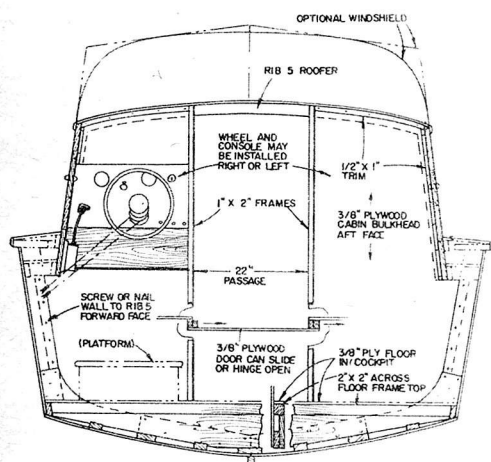
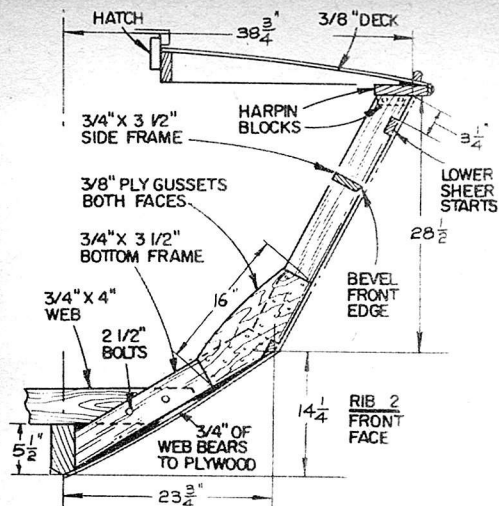
ings. Ribs 1, 2, 3, 4, 5 are secured to harpin "bottom" along with blocks between. Side plywood is screwed to these blocks when planking. Now keelson is cut and laid into the notches in each rib, and joined to forefoot with bolts, to each rib with long screws. Chine rail is bent into rib notches provided, working from stem back to transom, secured with long screw into each rib. Bend both chine rails on at same time to avoid shifting harpin on floor. Props from harpin edge to walls help steady in one spot. Sheer rails also bend on now, with screw into each rib, beginning at rib two and working back to transom. Whole framework may now be stiffened by adding two aft plywood sides, or you may proceed with the bottom battens. Since you are nearing the planking stage, this could easily be done. Plane chine and sheer rails to a flat to accept side panels, and use straight stick to check your work. Side bows from rib 7 aft. When plywood contacts sheer and chine along all faces, then the aft sides may be glued up and the panel clamped on. One-inch No. 8 brass screws every 2" will secure the panels permanently, but good ribbed



boat nails like Anchorfast will hammer in faster and do as well. Good practice is to drive in a screw every 12", then hammer in nails between, spaced 2". With these panels on, you are now ready for plywood fitting, and the forward side panels ought to follow. These are blanked out of large 4'x14' panels of 3/8" exterior or marine plywood; 3 ply is fine. Scrap from these panels are used elsewhere. Full scale plans show how all plywood is blanked out, using station numbers to follow for penciling



outlines. Getting good fit at harpin blocks is tedious task, and plywood is planed and trimmed to fit eventually against blocks and under harpin snugly. Any gaps are later covered with glass tape and resin. Before planing the plywood excess from the chines, cut and fit on the center bottom batten along each rib up to rib 3. This batten is not notched into the ribs, but rests right on their bottom. The bottom plywood will bend across this batten, thus imparting the "semiround" feature to the bottom,

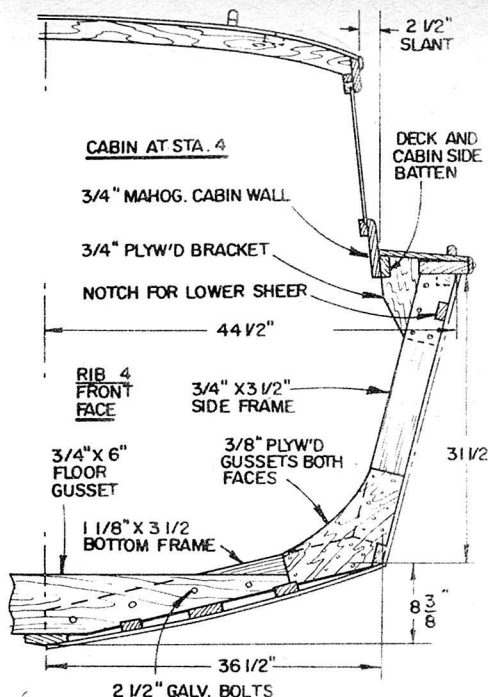


SECTION THRU STA. 5 SHOWING CABIN WALL

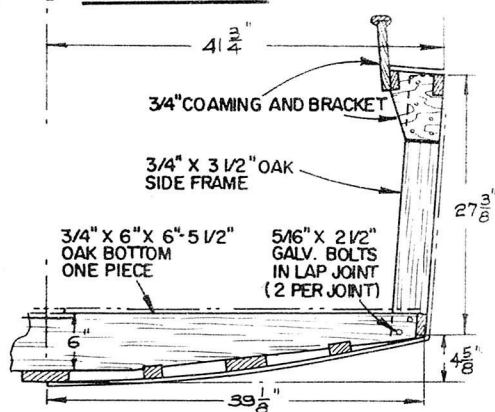
LARGE-SCALE PLANS

are available for building ROAMER. For plans, full details and specifications, send \$5 to Henry Clark, 36 Highwood Drive, Dumont, New Jersey. Ask for free catalogue of six plans.

resulting in a soft ride on choppy waters. Secure this batten and, using a flexible stick to test for bottom plywood contact, proceed to plane away side panel excess, planing to the angle that best suits the lay of the stick as you test. This process is called 'fairing' the framework for proper and full contact for all the plywood panels to be laid on. Now add other bottom battens, notching them in only part way as shown on art. The entire hull frame is so faired,

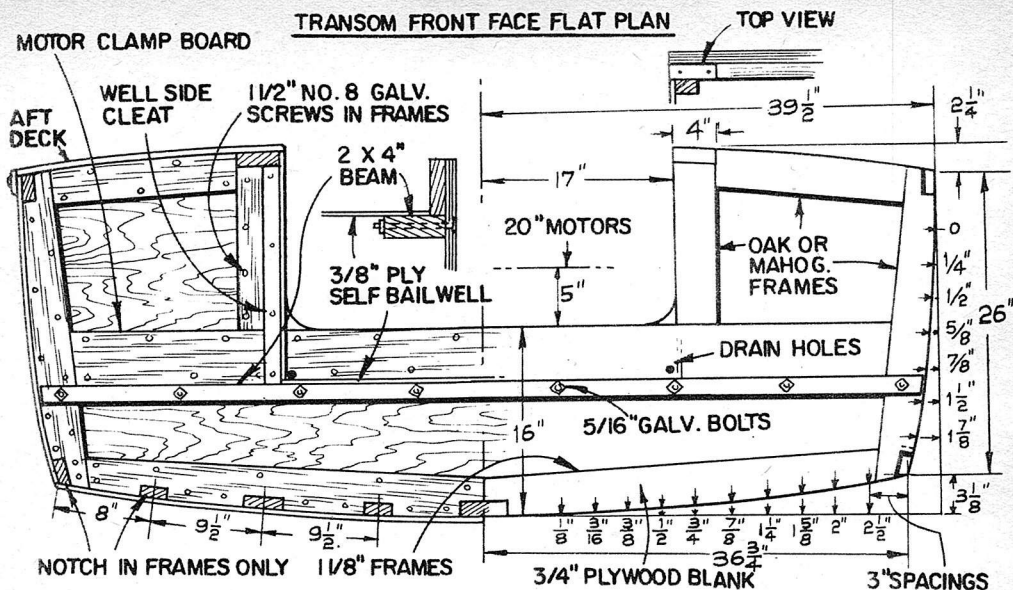


RIB 7 FRONT FACE



as you proceed in order to get the best and closest glue joints throughout the planking job. Forward bottom panels are now cut out of 4'x16' plywood 3/8" thick. Five ply is suggested here if available. These panels are started by clamping at the bow, and working back. On the chine it will butt to side panel mid-rib 2-3. Aft of this it will lap over side panel.

After fairing job with plane is checked out, then glue may be applied



and the fore bottom screwed down to keelson, stem, and along chine. You may wet the plywood to assist the bend around 1, 2, 3 ribs, but this isn't necessary on this gradual curve. Roamer was designed with smooth bottom, no abrupt bends. Her bow will part a good sea, or plane across more placid waters. Aft of rib 6, the bottom is completed with panel from 4'x8' plywood sheets. Butt blocks cut from $\frac{3}{8}$ " excess cover the butt joints, between bottom battens. Glue these generously, and screw or rivet to panels. Same butt blocking is done to side panels where they butt mid rib 5-6. Do not sand plywood. "Boat-Armor" fiberglass, a product of Glass Plastics, Inc., is now applied to bottom. Turn hull over and start topside work. This is done after blocking hull rigidly so you can climb in and out.

Remove rib ties, add deck brackets on cockpit ribs, also at cabin. To these brackets, secure the 1"x2" coaming battens, plumb in cockpit, slant at cabin wall, inboard. Add deck dash panel, and proceed to add deck frames forward. Glue and screw all joints. If plywood goes on deck now, "fair" all top surfaces of frames to assure good glue contact, then add $\frac{3}{8}$ " ply deck. Side decks can go on after planing proper flats along coaming battens and harpin edges. Cabin walls can go on either before or after adding side decks. Side decks are very wide for good footholds. Aft side decks can go on same way, and are all $\frac{3}{8}$ " plywood, unless

you fancy using $\frac{1}{2}$ " mahogany and varnishing. Plywood decks afford covering with a nonskid paint for best utility and safety, and certainly maintenance.

Start bracing up transom area now by adding the 2x4" motor board brace. Long bolts secure this. Rear seat back rib is curved and secured to coaming battens. To this is clamped the self-bailing water well from the seat back to transom. Side panels join bottom of well with cleats. Glue and screw or nail along all joints here. Two holes let water drain back into sea. The seat back is the water well front wall, of course, and makes the whole box very rigid. Seat board is hinged to lower front edge of well beam, giving access to fuel tanks and other gear. Two doors in seat back give access to tools and tackle. Seat itself rests on cleats at hull sides, and onto center strut. Aft decking continues right from sides, looking to good butt joints throughout. Cabin sides continue right into cockpit coaming, to encase the small fry. Aft deck area is clear of everything but aft cleats, for skin diving and skiing entry and seating. A ladder up the transom helps here. Floor beams are added between regular floor ribs. Notch these all for fore and aft cleats on which the floor plywood will rest. One section of floor must come up for cleaning and bailing. Floor panels rest on chines along side edges. Cabin walls, windows, roof rafters and roofing are now completed. •

First Mate

This design combines maximum of seaworthiness with minimum of cost.

By V. B. Crockett

THE FIRST MATE is just what the name implies; a small cruising sail boat that the first mate can handle without any trouble. Built on the heavy side for a boat of her size, she is an exceptional small sail boat. Rough water doesn't seem to bother her and she is at home in smooth water also. This boat can be built with an auxiliary motor if desired, but a 10 HP outboard hung over the transom can get you home any time when the wind dies.

The First Mate is designed for one who wants maximum seaworthiness with a minimum of cost. She is not too expensive to build and can be used for overnight cruising with comfort.

This boat can be built either conventionally or upside down if one wishes. The keel, weighing only 800 pounds may be attached after the hull is finished. Of course, all lines should be laid down to full size in order to get the patterns shaped properly. I do want to emphasize that this is a "must" if you want the job properly done.

The following specifications supplement the drawings:

WOOD KEEL: Oak. 4" sided and

molded as shown on plans. Fastened to iron keel with $\frac{3}{4}$ " galv. bolts, staggered and spaced as shown.

IRON KEEL: To be cast as shown on plans. 800 lbs. approx.

STEM: Oak. Sided 4" and molded as shown. Fastened to stem knee with $\frac{3}{8}$ " galv. carriage bolts.

STEM KNEES: Oak. Sided 4" and molded as shown. Fastened with $\frac{3}{8}$ " galv. carriage bolts to keel.

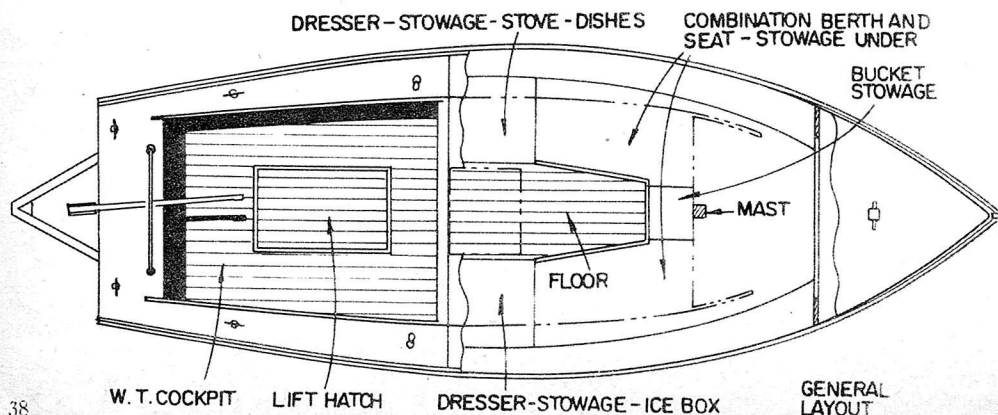
Cuprinol: Bilge—backbone—behind ceiling.

DEADWOOD: White oak. Sided 4" and molded as shown. Through fastened with $\frac{3}{8}$ " galv. bolts as shown. All joints locked.

TRANSOM: Mahogany or oak $1\frac{1}{4}$ " thick. On the forward outer edges of transom $\frac{7}{8}$ " x 2" oak cleats must be screwed to form an extra backing for plank ends. If preferred, the cleats may be set in from the edge of transom so that end grain of planks will not show. In this case increase thickness of cleats to $1\frac{1}{8}$ ". Transom to be fastened to stern post with through bolts of at least $\frac{3}{8}$ " diameter.

STOPWATERS: There will be stop-

Comfortable cabin and cockpit areas are features of this 21-ft. sloop; beam is 7 ft., 7 in.

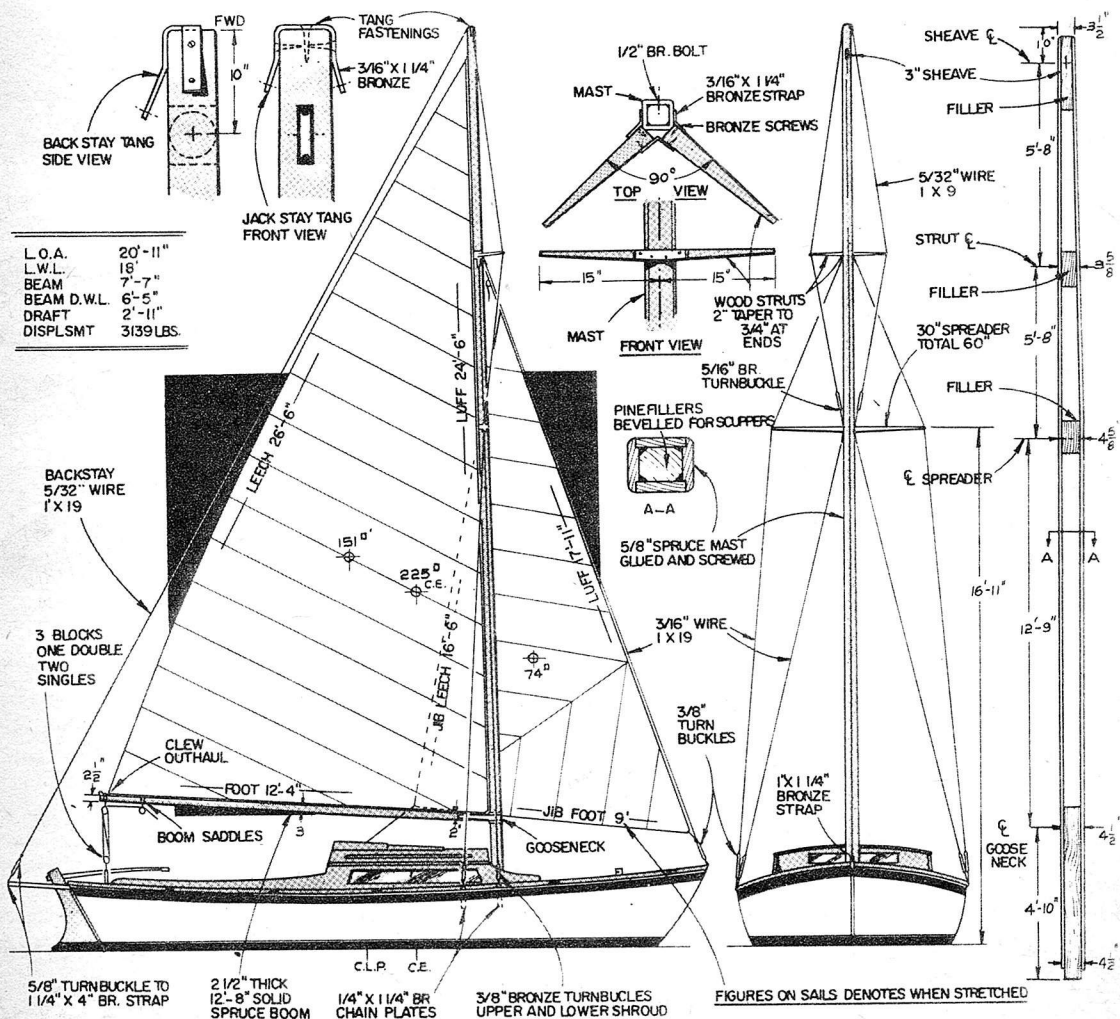


First Mate can handle either light breezes or rough seas with confidence and ease.



LIMBERS: There will be limber holes

PLANKING: Mahogany to finish 3/4".



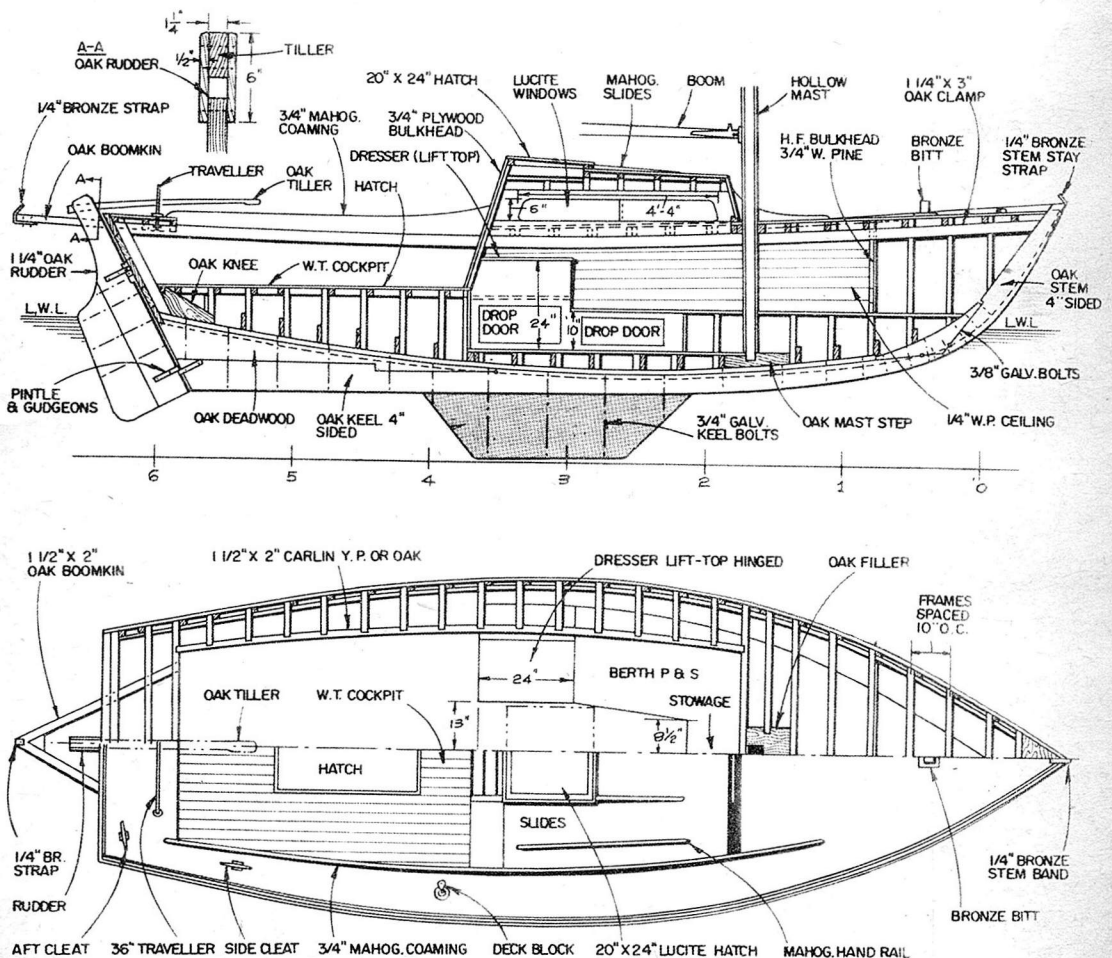
Planks do not necessarily have to be in single lengths, but no strakes should have more than 3 pieces. Butts should come about 4" forward or aft of the frame and should be braced with oak butt blocks $\frac{3}{4}$ " thick fitted tightly against the frame at one end. Length of butt blocks should not be less than 8". Butts in adjoining planks should not come within the same frame space and when two butts come within the same space there must be three other planks in between. Planks are fastened with Anchorfast Monel or Everdur nails with

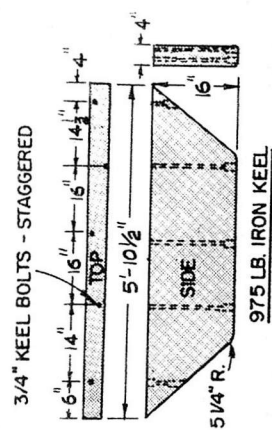
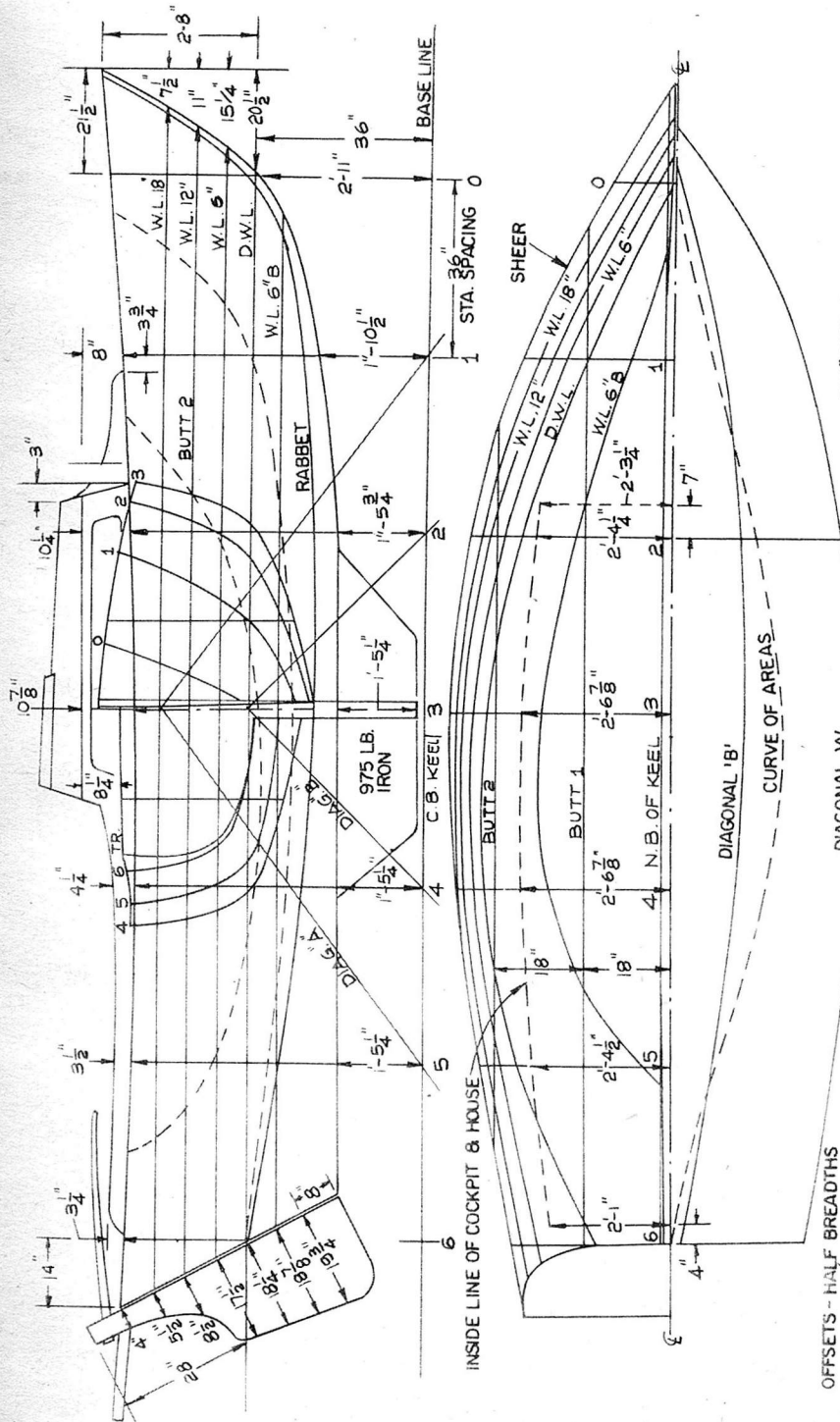
the heads countersunk and bunged. Frame fastenings should not be over 3" apart. To be well caulked.

DECKING: $\frac{3}{4}$ " white pine. Decking to be covered with 10 oz. canvas. Decking to be fastened to frames with $1\frac{1}{4}$ " nails. CARLINS: Oak $1\frac{1}{2}$ " x 2" as shown on plans. To be fastened to frames. Tie rods to be used if deemed suitable.

FACING PIECE: Mahogany or oak $\frac{3}{8}$ " thick, to extend length of cabin. Screw fastened to carlin and cabin sides.

CABIN SIDES: $\frac{3}{4}$ " mahogany to be fastened to deck with $\frac{1}{4}$ " galv. tie rods.





DIAGONAL 'A'

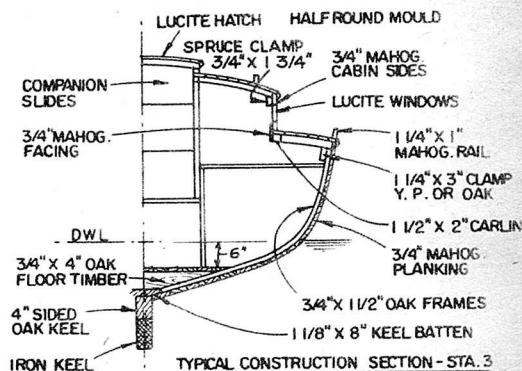
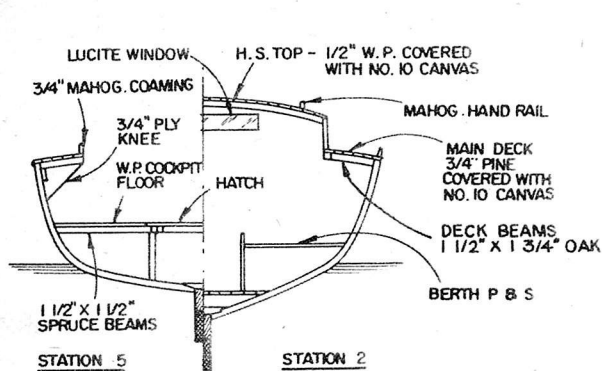
OFFSETS - HEIGHTS ABOVE B.L.

STATION	0	1	2	3	4	5	6	TR.			
SHEER	5-5	7-5	2-7	5-0	7-4	11-4	4-11	0-4	11-4	5-1	5-2
RABBIT	3-1	3	2-0	1-10	7-10	4-2	0-5	2-5	3-2	11-2	11-2
BUTT-1			3-0	4-2	5-3	2-3	0	2-7	6	3-0	2-3
BUTT-2				3-6	7-12	10-2	12-10	14	3-7	0	3-7

OUTSIDE OF PLANKING

OFFSETS - HALF BREADTHS										
STATION	0	1	2	3	4	5	6	TR		
SHEER	1-06	2-72	3-56	3-93	3-82	3-40	2-90	2-60		
W.L. 18"	0-90	2-40	3-30	3-84	3-74	3-30	2-82	2-62		
W.L. 12"	0-64	2-13	3-17	3-70	3-67	3-16	2-70	2-56		
W.L. 6"	0-36	1-00	2-12	3-47	3-46	2-12	2-23	2-26		
D.W.L		1-56	2-63	3-12	3-11	2-71	0-114	0-100		
W.L. 6"B		0-95	1-76	2-30	2-06	0-53				
DIAG. 'A'	0-84	2-14	2-10	2-30	2-31	2-95	2-27	2-20		
DIAG. 'B'	0-100	1-16	1-32	1-13	0-83					

ALL OFFSETS IN FEET - INCHES - AND EIGHTHS -



LARGE-SCALE PLANS

are available for First Mate. Please send \$10 for the complete blueprints and specifications to V. B. Crockett, designer, P.O. Box 133, Camden, Maine.

CABIN TOP: White pine or cedar T & G $\frac{1}{2}$ " covered with 10 oz. canvas.

CABIN BEAMS: Spruce $1\frac{1}{4}$ " cut to a crown of $1\frac{1}{2}$ " to 1'-0". Fastened similar to deck beams.

CABIN CLAMP: Spruce $\frac{3}{4}$ " x $1\frac{1}{4}$ ", fastened similar to main clamp.

WINDOWS: Port and starboard. Sizes as shown on plan.

CABIN FLOOR: $\frac{3}{4}$ " white pine. To be screw fastened to floor timbers with loose boards in the center to be used as a hatch.

COCKPIT FLOOR: $\frac{3}{4}$ " white pine to be watertight with self bailing scuppers. There will be a flush hatch as shown.

COCKPIT FLOOR BEAMS: Spruce $1\frac{1}{2}$ " x $1\frac{1}{2}$ " to be fastened to frames.

GRAB RAIL: Along the edges of the cabin roof there will be mahogany grab rails. $1\frac{1}{2}$ " x $2\frac{1}{2}$ " shaped as shown on plan and fastened by screws to roof.

TOE RAIL: Oak 2" high, $2\frac{1}{2}$ " at deck. Scuppers shall be cut as shown on plan. To be securely fastened to deck.

MOLDING: There will be half round oak molding extending from stem to stern and screw fastened to planking just under rail.

COMPANIONWAY HATCH: $\frac{3}{4}$ " mahogany sliding companionway of the usual construction, thoroughly watertight. Instead of doors under hatch, slides may be used for entrance to cabin.

FILLERS: Oak fillers are to be placed tightly between deck and roof beams under every item of deck equipment to help carry strain to the beams. To be approximately 2" thick and not less than 6" wide.

RUDDER: Oak $1\frac{1}{4}$ " thick and tapered. Shaped as shown and through fastened with $\frac{3}{8}$ " galv. bolts.

RUDDER GUDGEONS & PINTLES: To be bronze, made as shown on plans.

TILLER: Oak of suitable size and shape as shown. Securely fastened to rudder.

MAST: Sitka spruce. To be constructed from details of drawing by architect.

MAST KNEES: Oak, as per plan.

BOOM: Sitka spruce. To be constructed from details of drawing by architect.

DECK FITTINGS: Cleats, as shown on plan No. 4. Two bow chocks. Three small cleats, port and starboard, for fenders. See rigging plan.

PAINTING: Entire boat inside to have not less than 2 coats of paint and varnish. Outside bottom and topsides to have not less than 3 coats of paint and varnish. Deck to have one light coat of paint before canvas is applied. Canvas should have 2 coats of thin paint after being sponged. Colors to suit owner.

GENERAL EQUIPMENT: Boat shall be equipped with all required government articles, irrespective of where she is to be used. *



Here is 4x12 feet of spacious, speedy, seaworthiness that is easy, inexpensive to build.

Alert

This row-or-go plan features self-bailing bait bin for fishing forays.

By Hal Kelly

NO PROBLEM IN building the ALERT. This 12-ft. pram is designed as the ideal two-man fishing boat, although she will safely carry six people. The front and rear seats cover watertight compartments for dry storage use. Under the center seat are two bait wells, which may be used to keep your catch in as well as the bait. They are self bailing, if you wish to drain out the water on the way back, lightening the load considerably. She is designed to get the most out of a small outboard, 5 to 10 H.P. motors being ideal. I used a Mercury Mark 200 which is a little more power than one would need and snapped her along at over 30 M.P.H. She handles very easy with a pair of oars, sliding over the water quietly and easily. With her flat bottom she is almost tip proof, the perfect boat to cast from.

Under 50 dollars would be the cost for the hull. I like to fiberglass all my boats and if you fiberglass the bottom to about 4" up the sides this would run the cost up about 15 dollars. Two sheets

of $\frac{1}{2}$ " x 4' x 12' are used for the sides, bottom and seats, one sheet of $\frac{1}{4}$ " x 4' x 8' is enough for all ribs. Use exterior or marine grade plywood.

RIBS: Assemble ribs according to the rib drawings, using Weldwood glue and 1" No. 16 Anchorfast nails. Fasten the $\frac{1}{4}$ " plywood to the rib framing, note that ribs No. 3, 4, and 5 are identical in size and shape. Notch transom, stem and all ribs for the chine. Photo clearly shows the jig setup. The transom is set at a 15° angle and the stem at 30°.

Fasten the $\frac{3}{4}$ " by $1\frac{1}{2}$ " chines to all ribs, transom and stem with glue and $1\frac{1}{2}$ " No. 10 screws. The chine should need no fairing on the sides, just the bottom edge. The transom, stem and ribs will need a little fairing so that the plywood planking will rest evenly on them.

PLANKING: The sides are next and are glued and fastened to all ribs, transom, stem and chine with $1\frac{1}{4}$ " No. 14 Anchorfast nails. When nailing to chine you will have to hold a weight opposite the nail in order to drive the nail snugly

into the wood. If you are going to fiberglass the bottom just drive the nail head flush with the planking. If you are going to paint the bottom, countersink a bit and later fill over the nail head with Wood Dough or similar wood filler. Recheck the chine fairing for a good fit.

BOTTOM: The bottom is glued and fastened in place, similar to the sides, fasten to all ribs, transom, stem and chine. If you plan on fiberglassing the bottom, round off all the bottom edges. This will allow the cloth to lie over the edges with no problem, since it is difficult to get the glass cloth to fit snugly to a sharp edge.

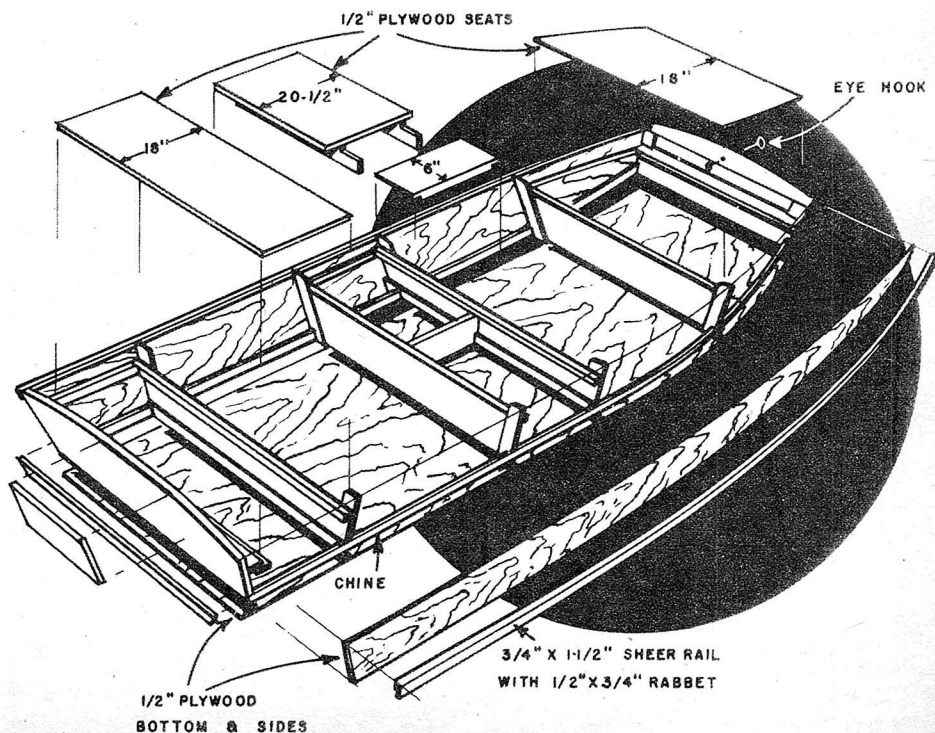
Remove the hull from the jig and set up at a good workable height. The sheer is $\frac{3}{4}$ " by $1\frac{1}{2}$ " and has a rabbet cut running lengthwise $\frac{1}{2}$ " deep and $\frac{3}{4}$ " wide to receive the $\frac{1}{2}$ " plywood sides. The sides are glued and nailed with 1" No. 16 Anchorfast nails to this sheer. The sheer is fastened to all ribs, transom and stem with $1\frac{1}{2}$ " No. 10 flat head screws. Now carefully saw off the excess on all ribs, transom and stem.

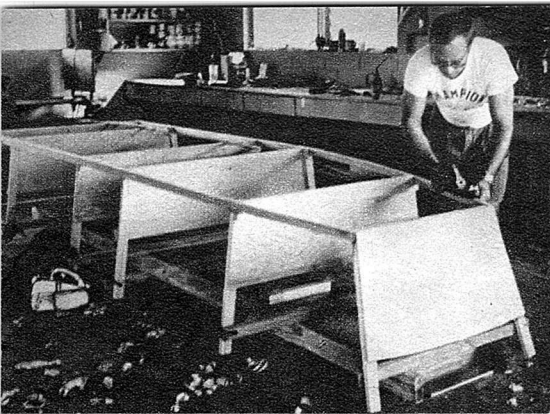
Fit a piece of wood $\frac{3}{4}$ " thick by about 7" wide running the width of the boat. Where the transom is fastened to this piece cut at a 15° angle and then cut a rabbet $\frac{1}{2}$ " deep by $\frac{3}{4}$ " wide on the other

side to receive the $\frac{1}{2}$ " thick plywood seat. The transom is glued and screwed to this piece, as are the sides, using $1\frac{1}{2}$ " No. 10 flat head screws. A $\frac{3}{4}$ " sq. piece of wood is fastened to the sides on each end of this storage bin, so that the end of the seat will have a solid resting place. This same procedure is used on the front storage bin.

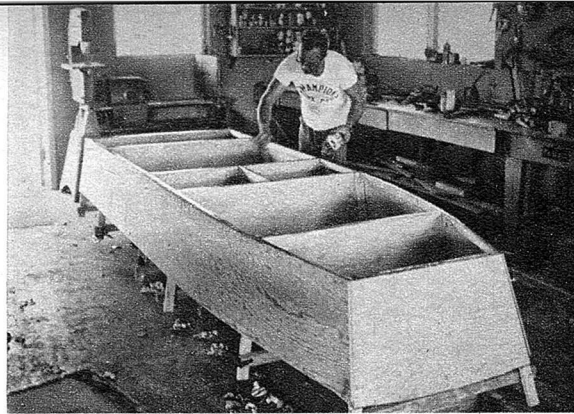
The bait well in the middle of the boat should be divided in the center with a piece of wood $\frac{3}{4}$ " thick and about 12" wide; carefully fit, glue and nail in place, then nail the ribs and bottom to this piece. Inside the bait wells fasten a $\frac{3}{4}$ " sq. piece of wood to both sides of the boat; this will support the well covers. A piece of wood $\frac{3}{4}$ " by about 8" wide and $20\frac{1}{2}$ " long with a $\frac{1}{4}$ " deep dado at each end is fastened to ribs 3 and 4 across the center of the bait well. Check exploded drawing to see just how the bait well covers are held in place.

Now, for the self-bailers, drill a $\frac{3}{4}$ " hole through the bottom at the very back of the bait well. I used $\frac{1}{8}$ " thick aluminum, but a piece of copper of around the same thickness will do the trick. I shaped it like a quarter of a ball, see photo and drawing for procedure, shape and size. I screwed these cups to the bottom with $\frac{1}{2}$ " No. 8 screws, with



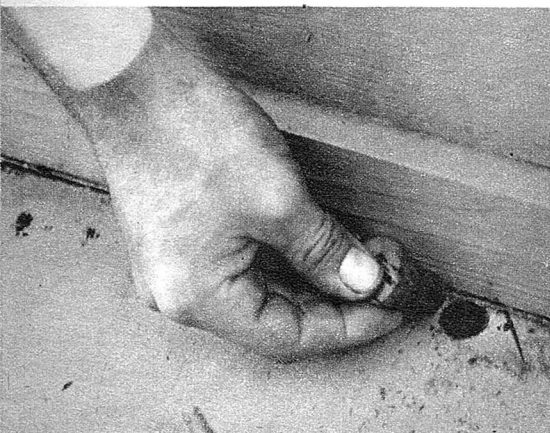


Set frames upside down on jig and proceed to install chine strips with glue and nails.

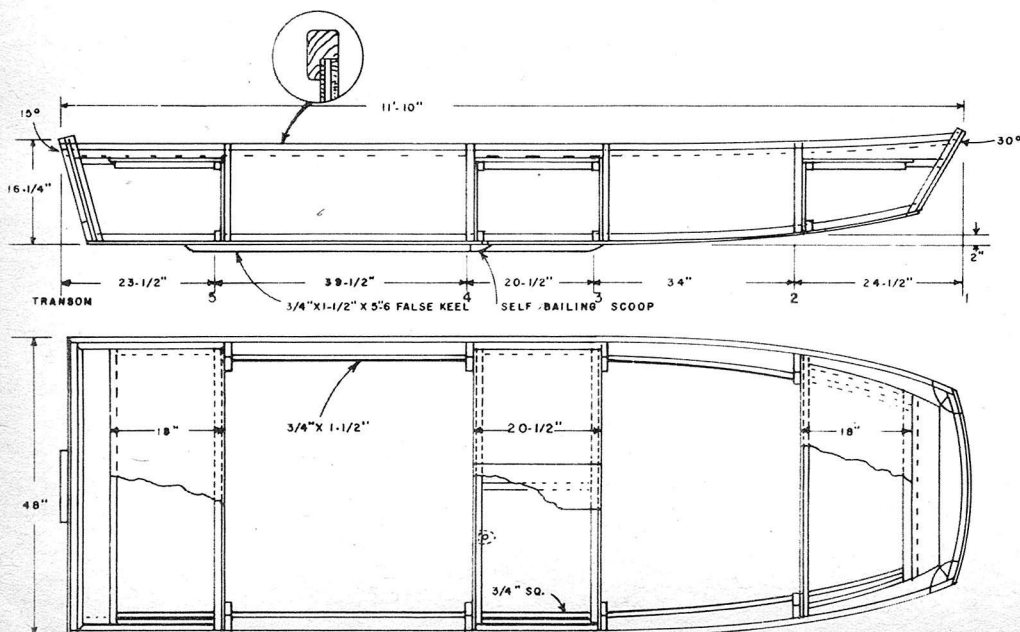


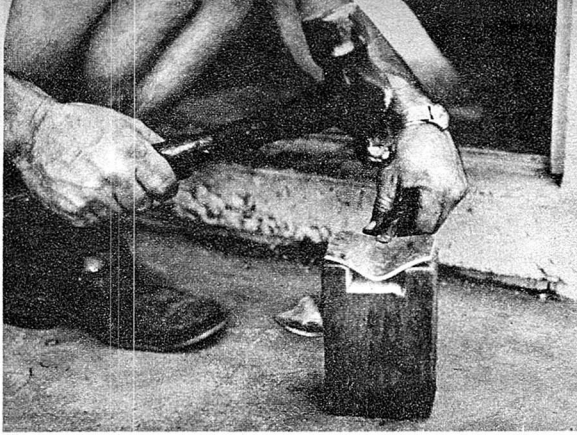
Sides go on easily, are glued and nailed to all the ribs, transom, stem and chines.

Common cork stops hole in the self-bailing well to make water either stay in or out.

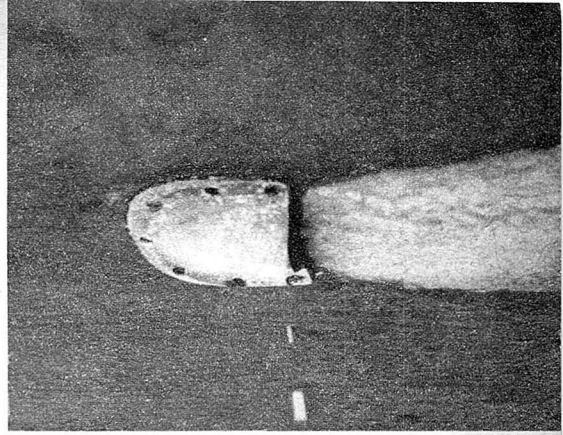


a calking compound between the cups and the bottom. Inside I put a common cork in the hole. Pull the cork out and the well will fill up with water. If you want the water to stay in better, put the cork back in while under way. With the cork out and the boat under way she will suck out all the water. The false keel is not necessary unless you put a larger motor on ALERT. Position the oarlocks for your own personal comfort. For fishing, use "pinned" oars. ALERT was designed to fit inside some of the wider station wagons, or you can trailer her on one of the very light trailers. Frankly the trailer is much handier as you can trailer your rig to the fishing grounds with motor, bait, tackle, etc., all loaded and ready for launching. •

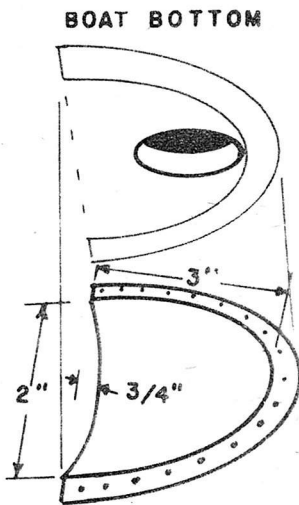




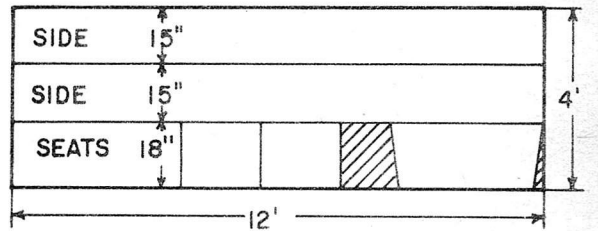
Two $\frac{1}{8}$ " thick pieces of aluminum or copper are shaped as shown to cover bailing holes.



Bailing cups are screwed to bottom of boat over bailing holes, with $\frac{1}{2}$ " No. 8 screws.



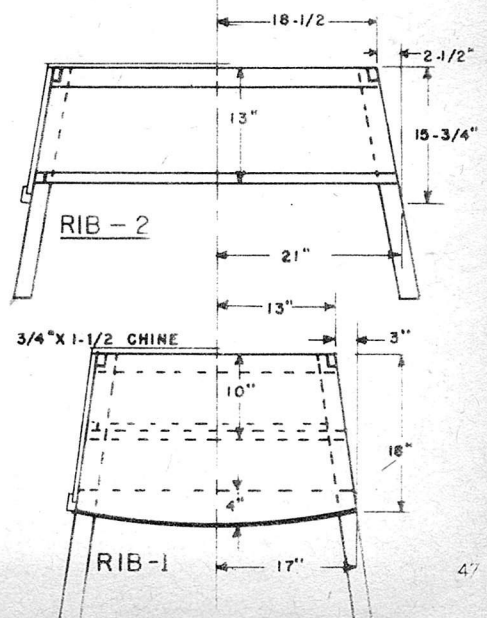
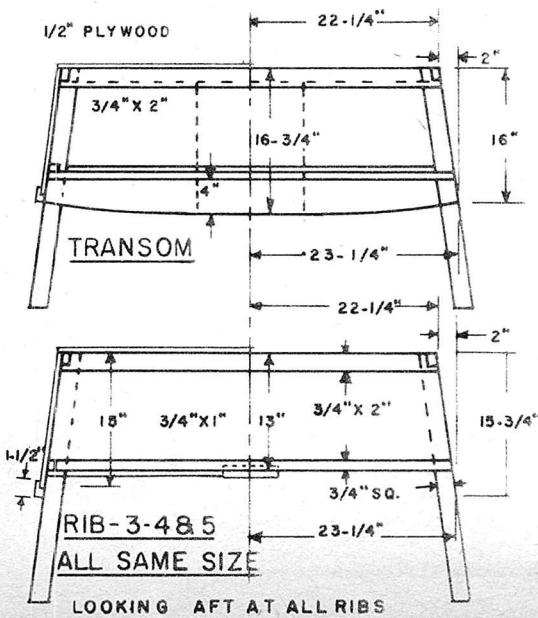
BOAT BOTTOM



$\frac{1}{4}$ " X 4' X 12' PLYWOOD 2 PIECES FOR SIDES & BOTTOM

Assemble ribs according to the drawings as shown here. Ribs 3, 4 and 5 are all the same size—so only one is shown. Study the plans carefully before starting and decide on a workable method of procedure. Use Weldwood glue and No. 16 Anchorfast nails.

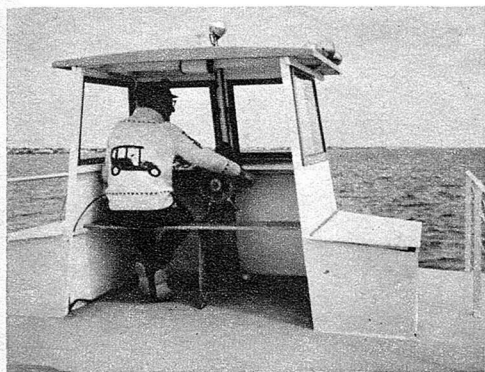
SELF BAILING SCOOP



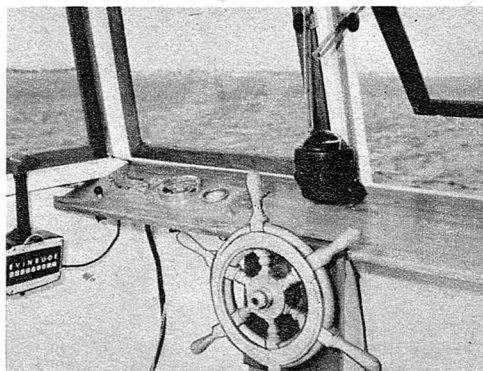


Marianne

By Ted Benze



VISIBILITY from wheelhouse is excellent. Locker on each side braces the structure.



INSTRUMENT panel is simple. Motor is a 75-hp Evinrude which has push-button shift.

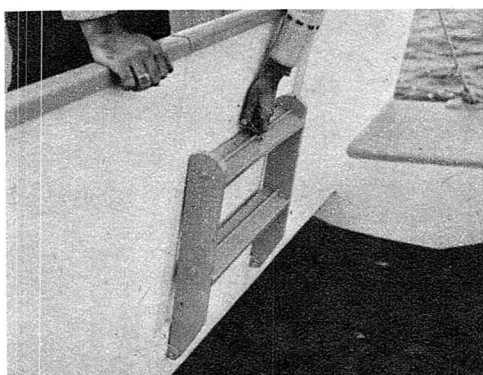
WHAT do you do if a family isn't happy unless it's afloat and the boat you have won't float them all? The answer is simple: get a bigger boat. But when we went to look at bigger boats it soon became apparent that we couldn't afford any we could use and didn't like any we could afford. The solution was

to design and build a boat that gives the most room for the least money—a houseboat.

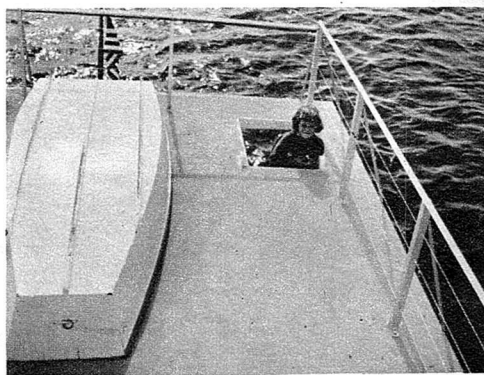
Marianne has a catamaran hull to provide minimum drag and maximum speed with a 75-hp outboard motor. She's stable and will do up to 15 mph on flat water. The two hull sections and the



This deluxe double-decker houseboat is a husky outboard-powered 28-footer with comfortable living accommodations for a family of six.



PIVOTING swimming ladder and removable sliding panel are secured by hook and eye.



ACCESS to upper deck is through opening which is inside railing, making it safer.

main deck are integral; that is, they were not built separately and then bolted together. The entire unit was framed up in an inverted position and covered on the bottom and sides with waterproof plywood and fiberglass. Then it was turned over with the aid of a sign-hanger's boom truck and the top-

side also got the plywood and fiberglass treatment. It makes for a very sturdy hull that isn't likely to come apart at the seams when the going gets rough.

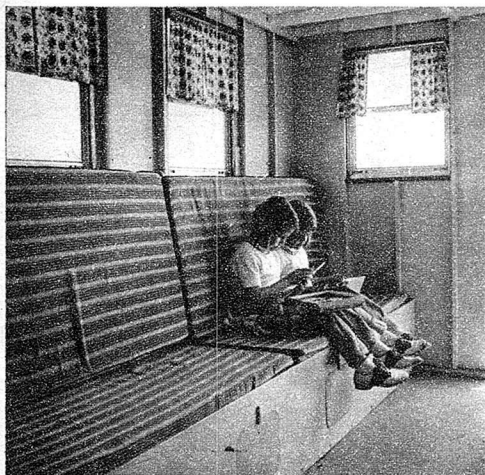
With the main deck completed, the house is easy to erect in a conventional manner. The cabin was designed to sleep six in bunks and provide comfortable

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

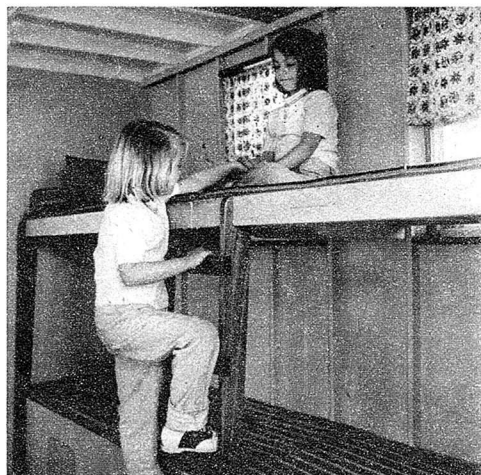
L.O.A.28'
BEAM12'-3"
DRAFT10"
DISPLACEMENT5,200 LBS.

PROFILE

WATERLINE



SEATS formed by bunks on port side are 10½ feet long. Note storage area beneath.

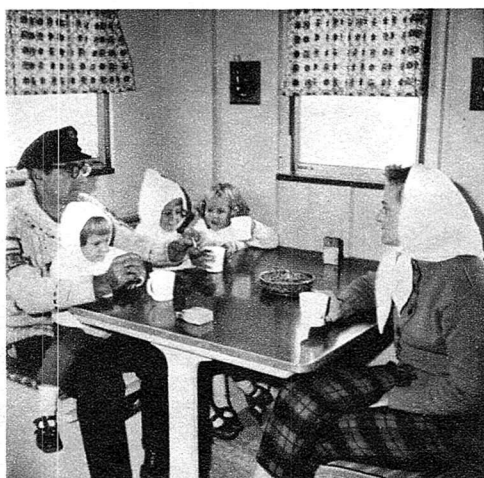
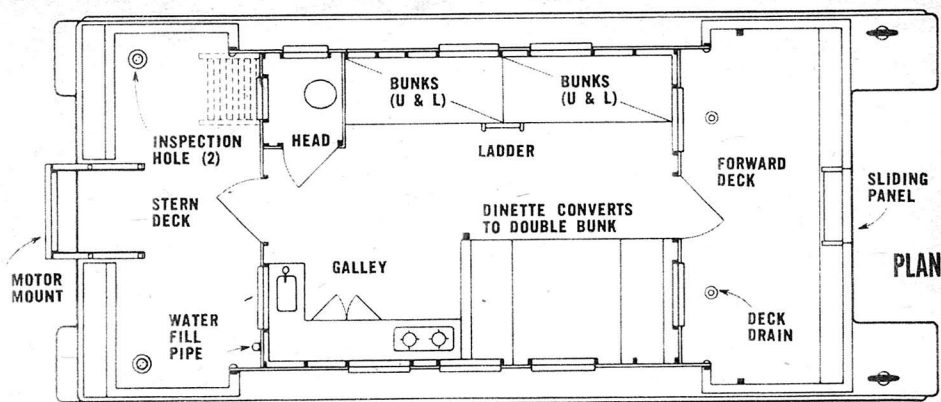


TOP BUNKS pivot on pins through studs. Front supports are ladder and end boards.

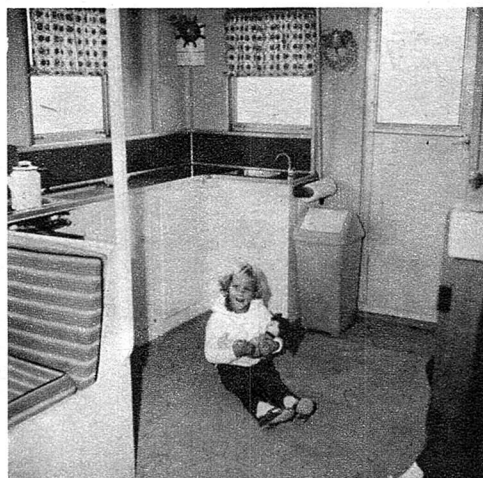
daytime cruising for ten. Four upper and lower bunks on the port side (each pair end-to-end) provide 10½ feet of seating when the top bunks are lowered. Opposite, the four-place dinette converts to a double bunk. Aft of the dinette, the galley area extends for six feet. It includes a stove which uses bottled gas, a sink, water tank, Formica-topped work counter and roomy storage cabinets. Opposite is a marine toilet with its chemical waste disposal tank located in a compartment under the adjacent bunk.

The top deck (or roof) is also plywood covered with fiberglass. For safety, a railing encloses it on three sides. The wheelhouse closes it off on the forward side. Control cables extend from the wheelhouse aft through the roof beams and then down along a stanchion to the motor. The dinghy carried on the top deck weighs only 65 pounds and is lowered easily by hand with the aid of a line.

In construction, oak was used for most of the framing and spruce served for longitudinal members of the hull.



DINETTE will seat four adults in comfort, is converted to bunk by lowering the table.

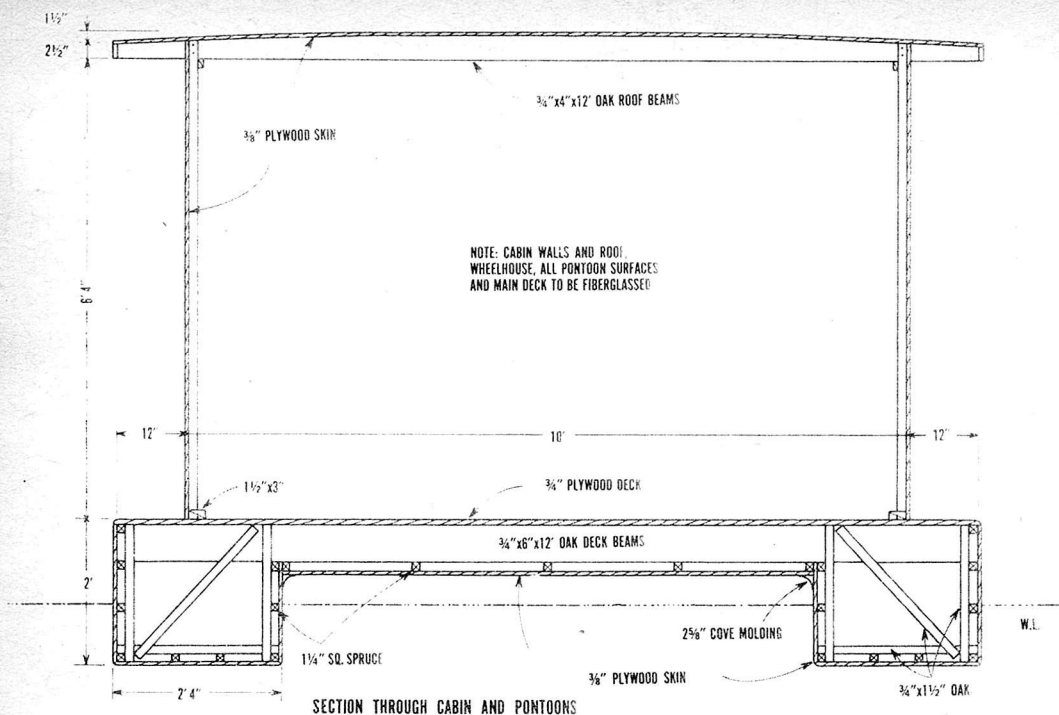


GALLEY has a large storage area. Water tank, under sink, is filled from outside.

LARGE-SCALE PLANS AVAILABLE

Plans for building Marianne are available. They are complete with text outlining building procedure, photographs and detailed drawings of the hull and house construction, but do not include a bill of materials. To get your copy, send \$5 to Mechanix Illustrated Plans Service, Fawcett Building, Greenwich, Conn. 06830. When ordering, be sure to specify by name, Marianne, and Plan No. B-8-64.

Apart from covering the hull, house and decks, waterproof plywood was used inside for the walls, bunks, dinette, cabinets and shelving. Fiberglass covers only the hull, decks and wheelhouse roof. Doors and screened windows are aluminum and the top railing was fabricated from aluminum stock and braided nylon cord. The cord was simply run through a series of holes drilled in the 1½-inch-square uprights and drawn tight. The entire cost, including the motor, was less than \$3,700—low, indeed, for so much livability.



BUILDING PROCEDURE

The first requirement in building *Marianne* is a level area, large enough to permit work on the craft from all angles. It should be convenient to the water if possible, for trailing the completed craft is comparable to moving a bungalow and there is the problem of obtaining a permit from local authorities in many areas.

The job is carried out in a series of basic steps, starting with assembly of the hull and main deck framework. It's best to complete this section upside down, erecting the hull framework on the easily-leveled deck beams. This also makes it easier to line up the hulls from all angles.

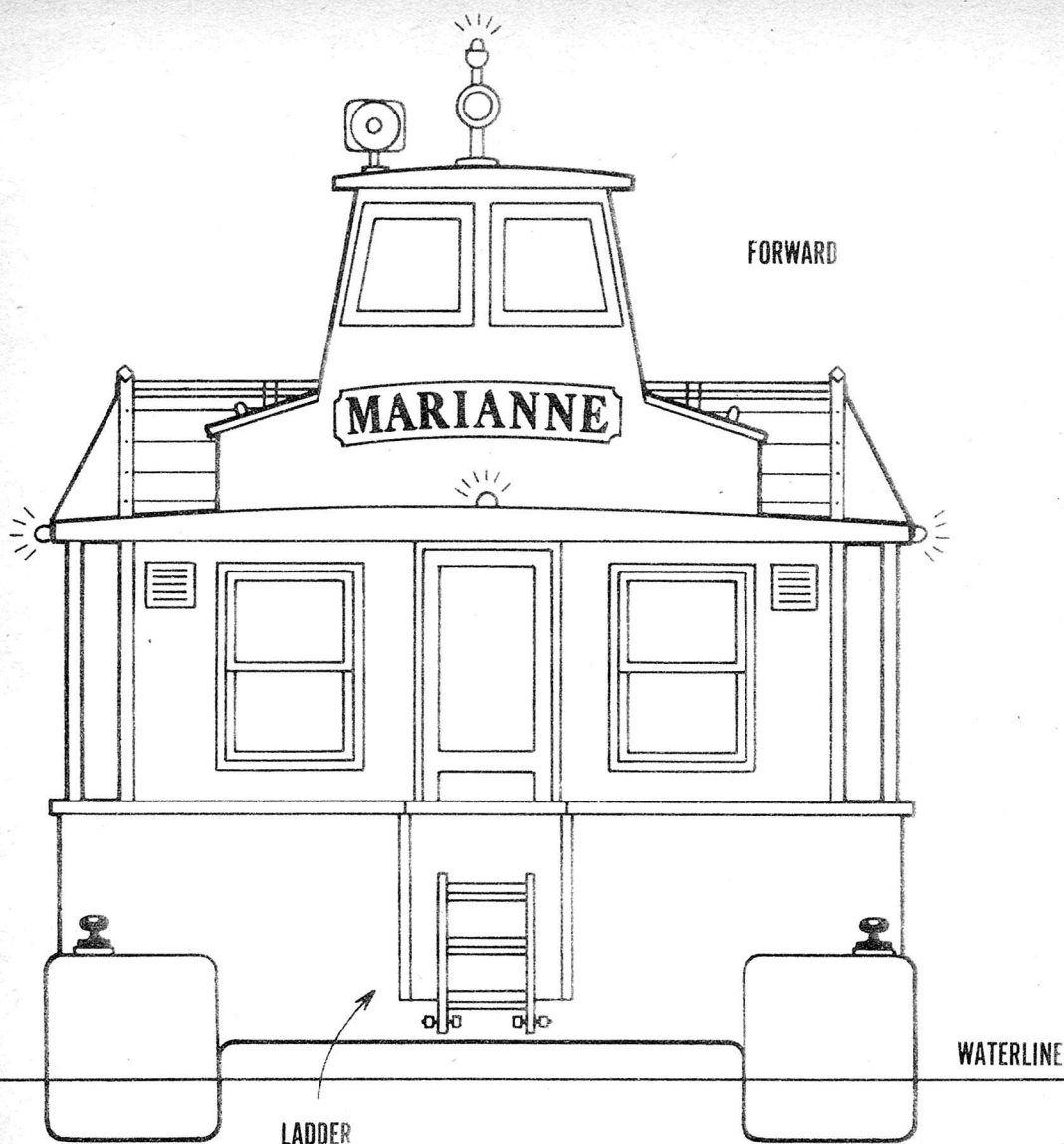
When sure that all members of the framing are aligned, the plywood is attached, closing in the hulls and the underside of the main deck framing. Then all corners are rounded and sanded smooth and the layer of fiberglass is applied to the plywood. Brush on the resin, lay the cloth and apply another coat of resin. When it has cured, a third coat of resin is applied. After a final sanding, the surfaces are primed and painted. Any anti-fouling paint, of course, is applied just before the completed craft is to go in the water.

The next step is to turn the hull and deck assembly over. It's easy with the aid of a derrick or a sign-hanger's boom truck. When it is done, the plywood used for the main deck is temporarily laid out on the deck framework. Then all holes for the toilet intake and outlet hoses, sink drain and through-hull fittings should be bored. Naturally, the through-hull fittings for the toilet intake and outlet hoses are located below the waterline on the hull.

With the fittings installed, foam plastic flotation blocks may be secured in the hulls and the deck fastened down. Fiberglassing of the entire structure follows, making it an integral, watertight unit. At this point, the hull painting is completed but the deck is left without paint.

The house is next. First the sill is fitted and fastened and then the entire framing is erected as indicated in the drawing. When it is finished, all holes for control cables, wires and tubing are bored. Then the plywood walls and the roof (upper deck) are added. After the roof has been covered with a layer of fiberglass, the fore and aft bulwarks are installed and the entire job gets a prime coat of paint.

Now is a good time to prefabricate the ladder leading to the top deck, give



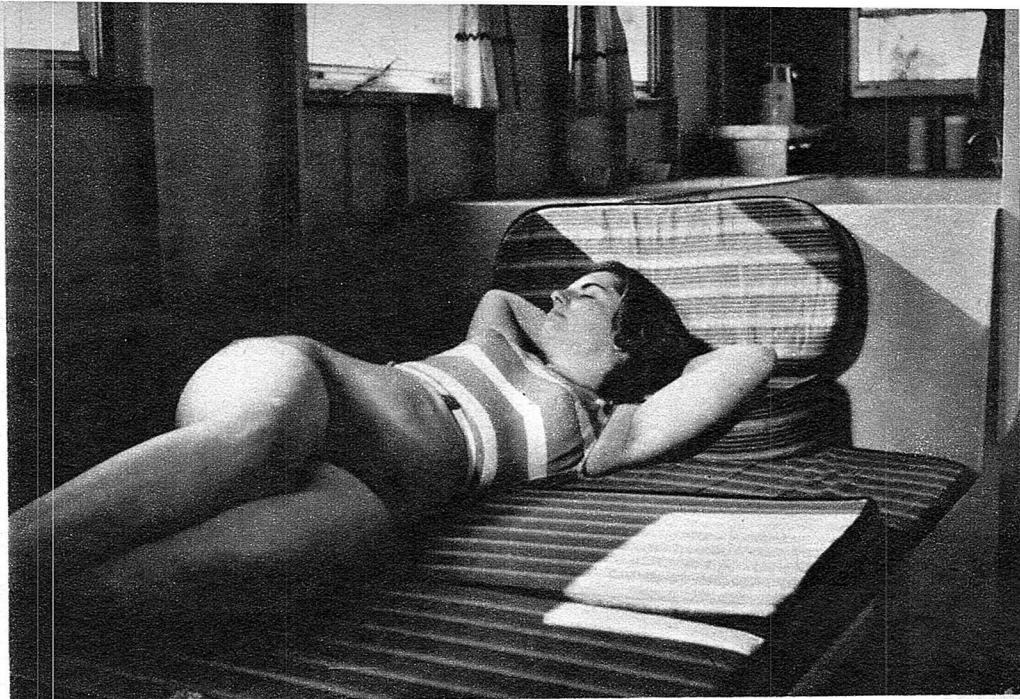
it a coat of paint and install it. Then the windows and doors can be fitted in and a final coat of paint can be applied to the house exterior and the bulwarks.

Returning to the upper deck, the wheelhouse and lockers are the next to be built. It's best to do this right on the boat. Construction can be relatively simple, with the forward face of the wheelhouse sloped 12 degrees. One of the lockers, incidentally, houses a propane gas tank for the stove in the galley. The completed structure is sanded, varnished and painted before

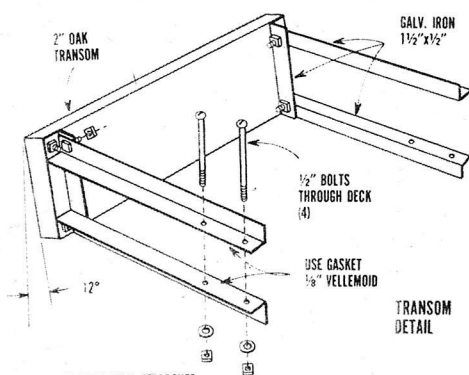
the glass is installed in the windows.

The interior is next on the agenda. You have to frame up and panel the bunks, convertible dinette, toilet enclosure, counter and shelves, installing the water tank, sink, stove and fuel line (if you use propane) in the process. A 20-gallon water tank (preferably of stainless steel) may be fitted into the corner of the cabinet with its fill pipe leading out through the aft bulkhead. The entire interior then can be painted to suit.

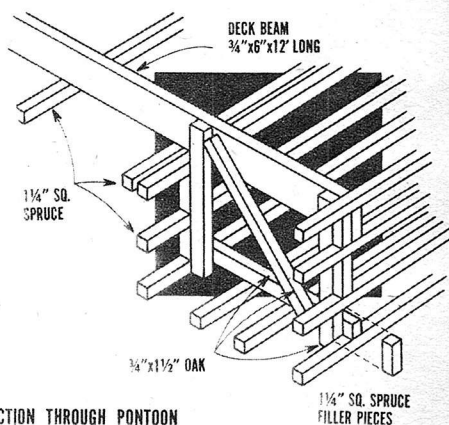
You're now ready to install the con-



Dinette converts to a comfortable double bunk in this really roomy home-away-from-home.



NOTE: ALL BOLTS GALVANIZED OR BRONZE



trols and steering cables for the motor, wires for the running and cabin lights, fuse box, horn and spotlight. Other things like mounting the fire extinguisher, life preserver racks, curtain rods, clothes hooks, first aid kit and other necessities are also taken care of at this time. Then the forward ladder is attached to the hull, the aluminum railing is built on the upper deck and all the regular boat hardware (cleats, etc.) is installed.

The final work is at the stern, where the motor mount is completed. Then

the motor can be hung and connected to the controls and the gas cans brought aboard. If you like, a permanent 20-gallon gas tank can be fitted in on the aft deck.

All paint used above the hulls and main deck was a fine grade of exterior alkyd. At this writing, it has been on for two years without signs of blistering, peeling, chalking or fading. The decks will show signs of wear unless they are painted with one of the special paints used on fiberglass, a paint which is actually a pigmented resin. •

Ski Tow

*Stylish and sturdy,
this fine boat can be
built from plans or
frame kit—with ease.*

By Glen L. Witt

Wide cockpit can "sleep" two when seats are removed—providing an eight ft. long flat floor space.



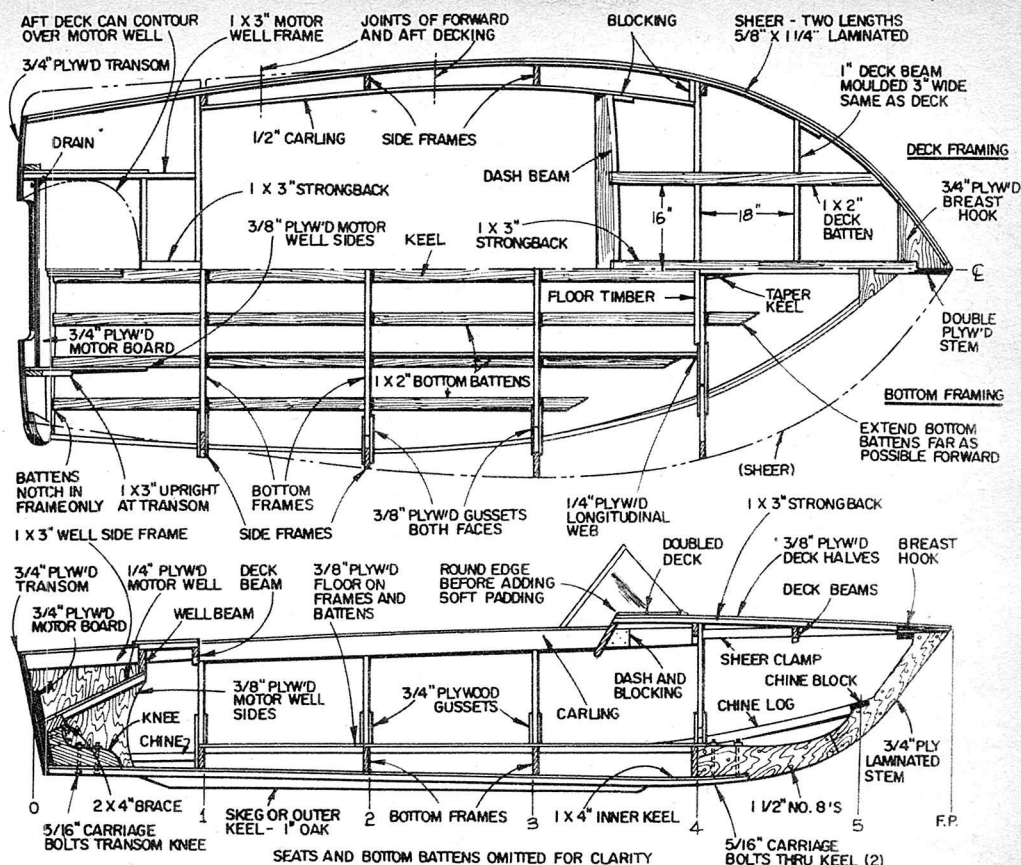
THE "SKI TOW" is a modern-styled outboard runabout intended for construction by the amateur builder. The overall center line length of 14' 8" combined with a 6' 6" beam makes the hull capable of handling almost all of the larger motors. For all around general usage, such as water skiing, use about a 50 HP outboard motor. An unusual feature is the large flat cockpit floor. Since the seats are removable they can be shifted to any position and the flat area be utilized for sleeping. With the seats removed a full 5' wide by 8' long flat area is available. An excellent safety feature of this boat is the self-bailing well that separates the motor from the cockpit area and also provides self bailing for any water coming over the transom cutout.

Plans and Patterns as well as Frame Kits, Fastening and Fiberglass Kits are available from "GLEN L" at the address noted in the box that accompanies this article.

Lumber for building should be first grade, free from shakes and knots. All plywood used should be edge stamped EXT-DFPA to insure that the material will stand up in marine conditions. All joints throughout the construction should be glued with the plastic resin type considered satisfactory although the resorcinol type is preferable.

When the term "nails" is used it refers to the annular ring type boat nails. Bronze or hot dipped galvanized screws are used in other points and are preferable to the brass which is rather weak and tends to fracture under stress.

The frames are constructed from standard 1" material with corner gussets on either side of $\frac{3}{8}$ " plywood. Throughout these instructions the term 1" material will refer to "four quarters" lumberyard material. Such stock will usually result in finished lumber about $\frac{3}{4}$ " to $\frac{7}{8}$ " in thickness. The bottom frame member at the transom frame No. 1, No. 2, and No. 3 are all in single

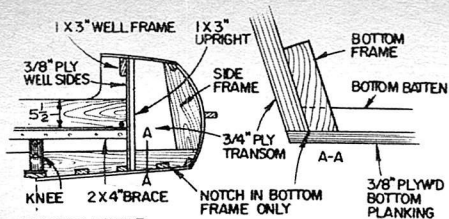


width from chine to chine. At the No. 4 frame, however, the bottom frame is made in two halves joined together over a backing member called floor timber. Note that a slot is left so that the stem will mate to the floor timber while fitting between the side frame members, in this instance. The stem, breasthook, chine blocking, and transom knee are all made from laminations of $\frac{3}{4}$ " plywood. The chine blocking is that member that rests in the ledge on the stem to accurately position the chine log. The upper portion rests on the ledge while the lower part lock notches around the stem. The breasthook is similar in nature but rests on top of the stem to accurately position the sheer clamps. The stem, as noted, in the drawings is merely two layers of $\frac{3}{4}$ " plywood laminated together. In all cases coat the laminations with glue and fasten together with $1\frac{1}{4}$ " nails or $1\frac{1}{2}$ " No. 8 screws. The transom knee reinforces the junctions from the keel to the transom and is built up from

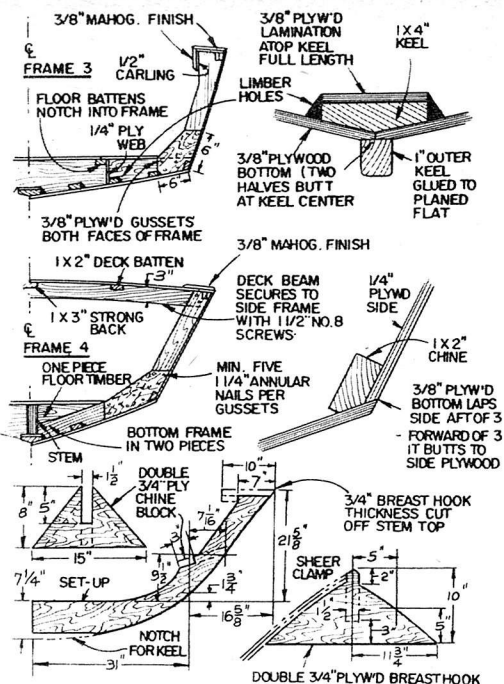
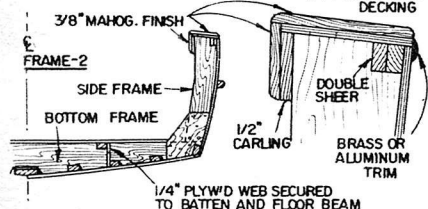
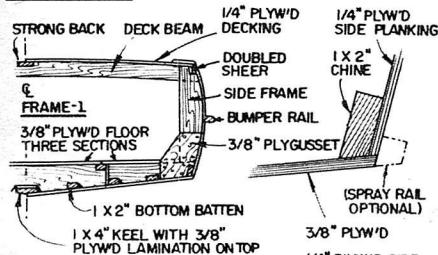
three laminations of $\frac{3}{4}$ " plywood glued and fastened as the aforementioned laminated members.

The hull is built bottom side up on a simple building form consisting of two longitudinal members. Each of the frames is aligned carefully in position and the stem breasthook assembly located accurately the required distance below the form. The keel member of $1" \times 4"$ laminated on the inside with $\frac{3}{8}"$ plywood is then sprung into position and bolted to the stem. The sheer clamps are put on in a vertical plane in two laminations of $\frac{5}{8}" \times 1\frac{1}{4}"$ material. The $1" \times 2"$ chine logs are sprung in from the bow starting aft anchoring at the chine blocking first and fitting into beveled notches in each of the frames with 2" No. 10 screws.

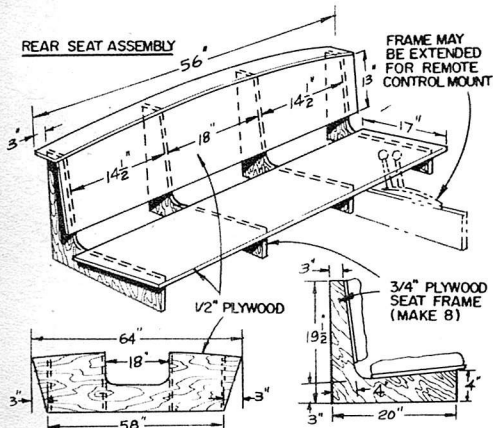
All of the members must be faired or beveled so that the planking will lie flat to all members. It is best to install the $1" \times 2"$ battens after the fairing is accomplished so they may be set in ex-



TRANSOM LAYOUT

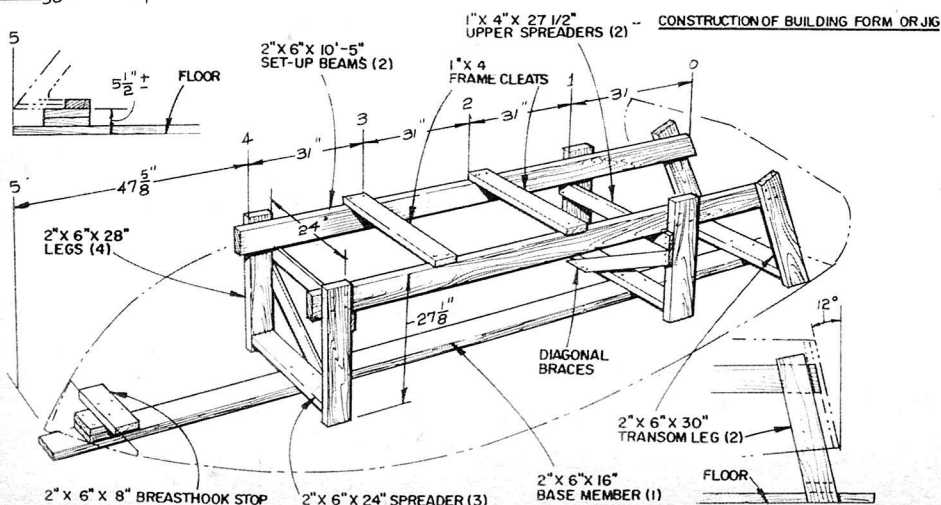


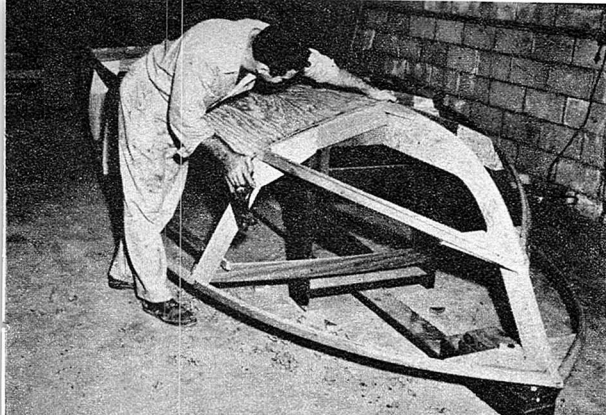
REAR SEAT ASSEMBLY



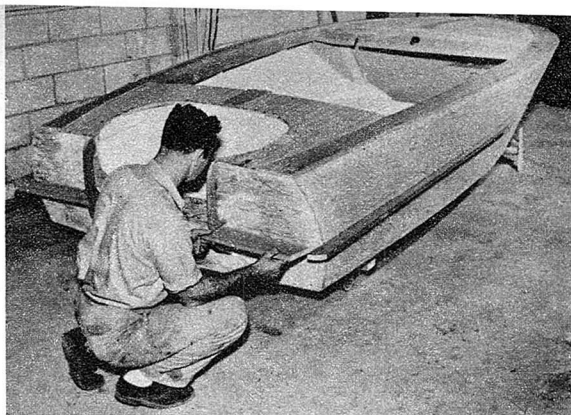
LARGE-SCALE PLANS

with Patterns are \$17.75; with Frame Kit are \$94 FOB. Fastening Kits are (galvanized screws, bronze nails) \$24; (bronze screws, bronze nails) \$70. Fiberglass Kit (bottom only) \$30 FOB; (bottom, sides and transom), \$52 FOB. Order from Glen L. Marine Designs, 9152N Rosecrans, Bellflower, Calif., 90707. Specify FB Ski Tow.





Framing is beveled for a perfect fit, then checked with short piece of scrap as shown.



Putting finishing touches on bumper rails that extend around sides and transom area.

actly the thickness of the material to be used. Take care in the fairing that the lines are all smooth and even without humps or bumps.

The side planking of $\frac{1}{4}$ " plywood, preferably in full length, is leaned up against the side of the boat and roughly marked to fit. The only part that is necessary to fit closely is that portion forward of frame No. 4 that will butt join with the bottom planking. Aft of this point, along the chine, the stem, transom, and sheer, the planking may overhang to be trimmed off after application. In applying the planking coat the mating surfaces with glue and fasten the planking in place with 1" No. 8 screws starting at midpoint. Position the area that will butt to the bottom planking first then roll in the curved aft section progressively to the transom.

The $\frac{3}{8}$ " thick bottom planking is installed in similar fashion. Again it will be necessary to fit the panel to the side planking forward of frame No. 4 and also along the keel and stem area. After fitting all the planking in place trim the overhanging areas, putty the holes, and sand smooth. The hull may then be righted preparatory to the installation of the interior.

The decking area is faired smooth and the carling members as well as the intermediate deck beams and dash beams fastened into position. The fore and aft strongback and deck beams notch into each of these beams and end either at the breasthook or taper to fit against the chine.

The motor well is ruggedly constructed with uprights from the second batten outward from the keel with $\frac{3}{8}$ "

sides. These sides form the motor well area and also provide reinforcement for the transom. Athwartships across the top of the transom knee a 2" x 4" lumberyard member is used for additional reinforcing for the tray bottom.

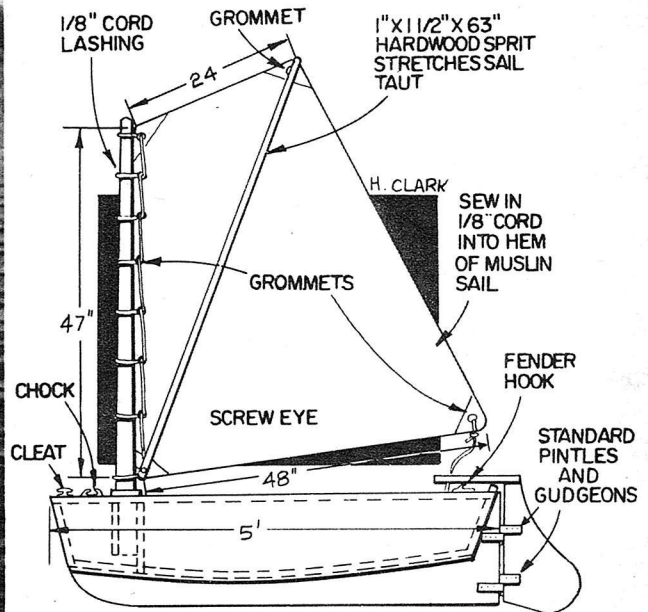
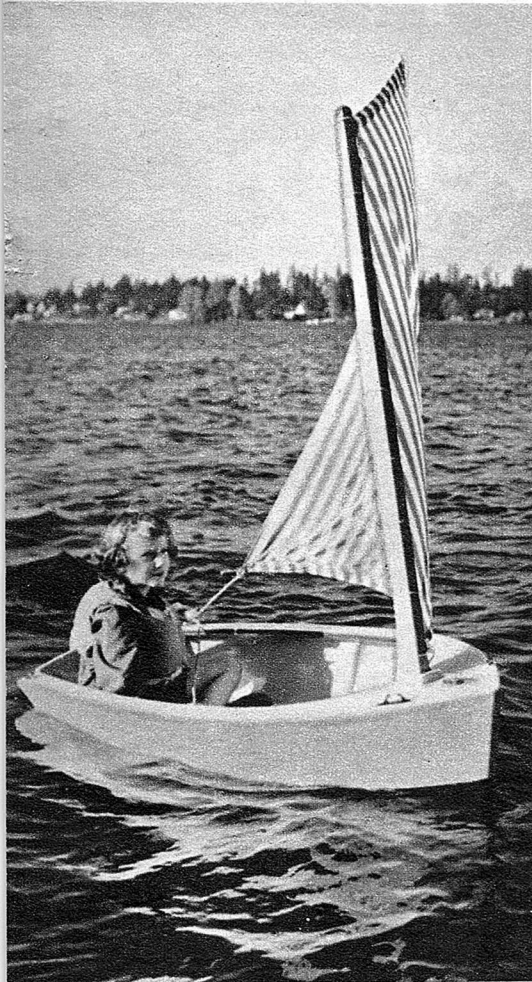
The floodboards are $\frac{3}{8}$ " thick plywood put on in three pieces and are 8' in overall length. The seats are intended to float free on this structure and can be moved from point to point, placed back to back, or even removed entirely for a flat sleeping area. The seats are constructed of $\frac{3}{4}$ " plywood with $\frac{3}{8}$ " plywood backs and seats. Upholstery can be to the builders own desires or life preserver cushions used to pad the seats.

The "SKI TOW" is intended for outboard motors, however, a small lightweight inboard/outboard type unit, not to exceed 500 pounds, could be installed. When an inboard/outboard is used the motor should be mounted on longitudinal stringers extending as far forward as possible. These will bear on top of the frames and be blocked and bolted to each with a 2" x 2" oak upright. Space the stringers to suit the particular motor to be used. Minor deviations will be required at the transom depending on the type of inboard/outboard used. Controls and fittings are optional with the builder.

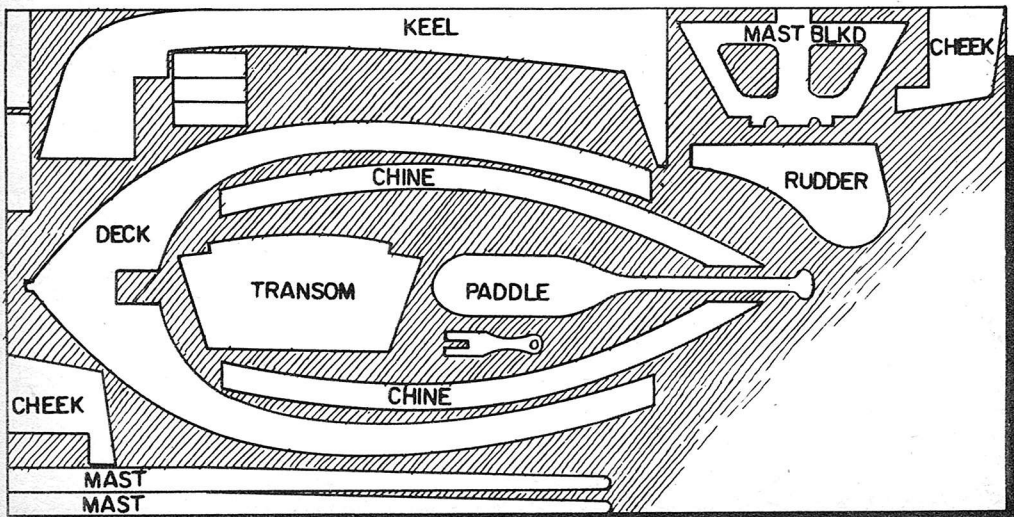
The hull may or may not be fiberglassed as the builder desires. If the fiberglass and resin is applied, only a paint intended for use over this material should be used. Needless to say good marine paints and primers should be used according to the manufacturer's directions throughout the construction. •

Guppy

By John Burroughs



Guppy is five feet long, 32 inches wide and 15 inches deep. She weighs about 40 pounds.



3/4" X 4' X 8' EXTERIOR PLYWOOD CUTS OUT MAJOR FRAMING PIECES

glue on the keel. Draw a center line down the middle of your bottom plank as a guide for nails later on. Then slip the bottom planking into place on the keel. Now the "foundation" or keel of your boat is laid. Fasten the bottom plank to the keel with 4d (four penny galvanized box) nails or screws. Space the fastenings about every 1½ inches.

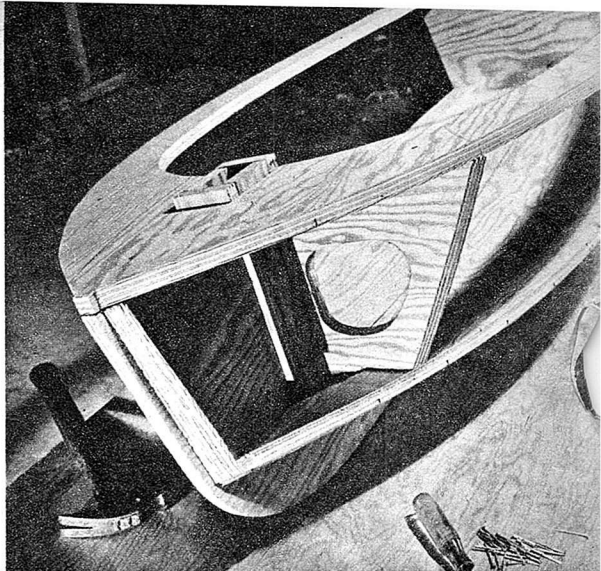
The cheek pieces (pieces laid on each side of the keel to provide a more solid bearing surface) are next. These are nailed to either side of the foremost part of the keel. Before you nail these pieces on, take a small plane and bevel their edges to the angle shown by dotted line in the drawing. If you are good with a saw you can cut it. The cheek pieces are beveled wider at the bottom than at the top. It ranges from about ¾ of an inch to an inch. Now nail the cheek pieces to the keel. The bottom planking should be nailed to the bottom of the cheek pieces.

The next step is fitting the transom into place. This is the piece that forms the back, or stern, of your boat. Use a wood rasp to smooth the notches in the transom. Plane off the bottom of the transom so that it fits flush on the bottom plank when it is resting up against the back of the keel. Spread glue on the bottom of the transom and edge of keel and nail it into place. Nail it both to the keel and to the bottom planking.

The chine pieces are next. They are the long, curved parts that are nailed to the bottom plank. Bevel the after end of the chine pieces so they fit snugly against the transom. Saw several slits about ¼ inch deep across the bottom of the chines to allow them room to bend. Spread glue on the bottom of the chine pieces and nail them into the bottom plank. Excess bottom planking left for trimming. Use ¾-inch galvanized ring shank nails or screws. Nail through the bottom plank into the chine piece. The small clamps in the picture are not absolutely necessary if you have a helping hand.

Now make the well box for the mast with the three pieces shown on the plan. Nail the box into place against the keel and cheek pieces as shown.

Then put the bulkhead in place and nail it to the mast box. This forms the back of the mast box. Now you are ready



to put the deck piece on. This is the long "wishbone" that forms the top piece of your boat. Fit it into place and then nail it to the tops of the cheek pieces, keel, bulkhead and transom.

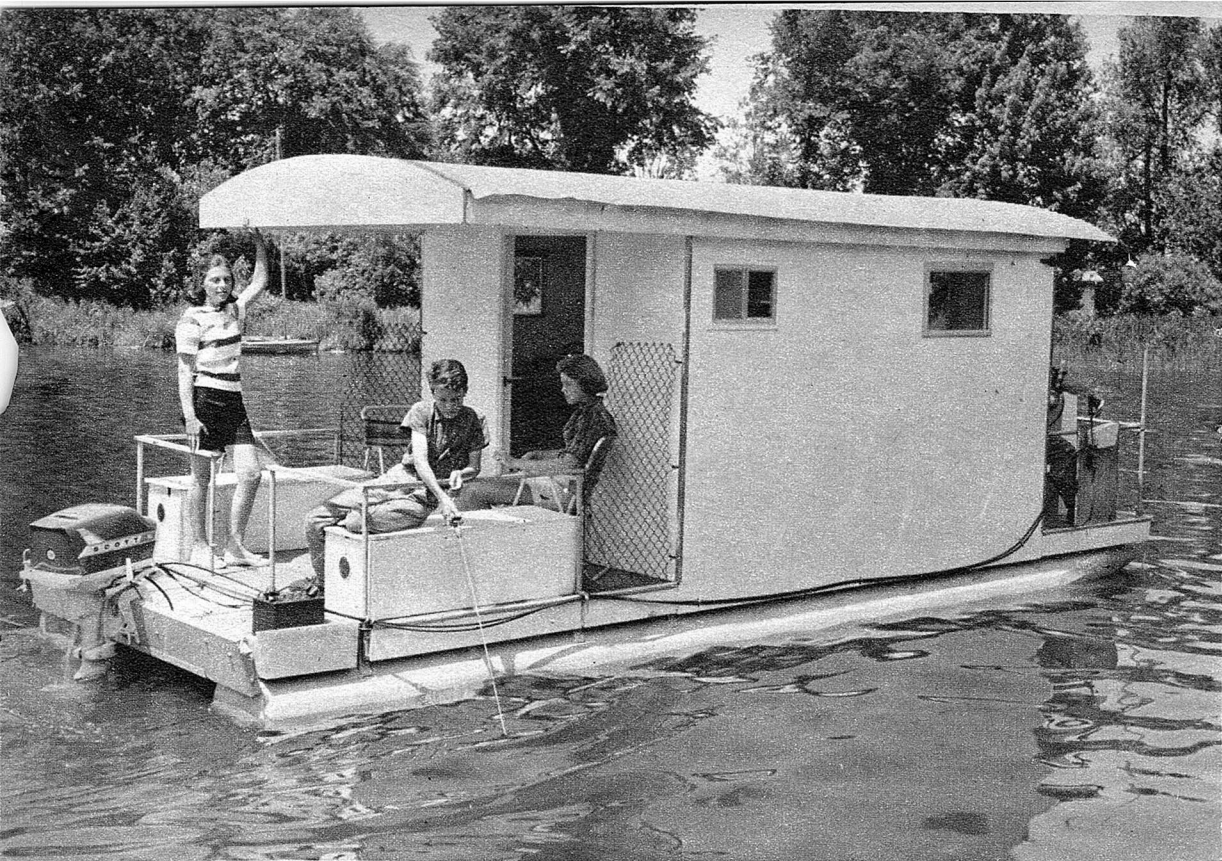
Now it's time to put in the side stiffeners which form a brace between the deck piece and bottom planking. These pieces must be beveled on both ends to fit. It's a good idea to drill a hole to start the nails here because of the angle of the bevel.

Now comes one of the most important parts of the construction. It is called fairing, and must be accomplished before the side planks will fit. Fairing consists of beveling off the edges of the transom, chines, bulkhead and cheek pieces on an angle so that the side planks will fit flush all along those surfaces.

Now it is time to put on the side planks. Coat the edges of the chines, bulkhead, cheek pieces, bottom planking and transom with glue. Work carefully when putting the side planks in place, as this is a crucial point. You will need a helping hand to hold the other end of the plank while you fasten the forward part of planking to the bow. •

LARGE-SCALE PLANS

are available for building this boat. A full size pattern is also included. Please send 25c to American Plywood Association, 1119 A Street, Tacoma 2, Washington. Specify FB Guppy. Plan No. 70.



Escape

By Peter Whittall

Buy a pontoon kit, erect a simple house and you have a low-cost family cruiser!

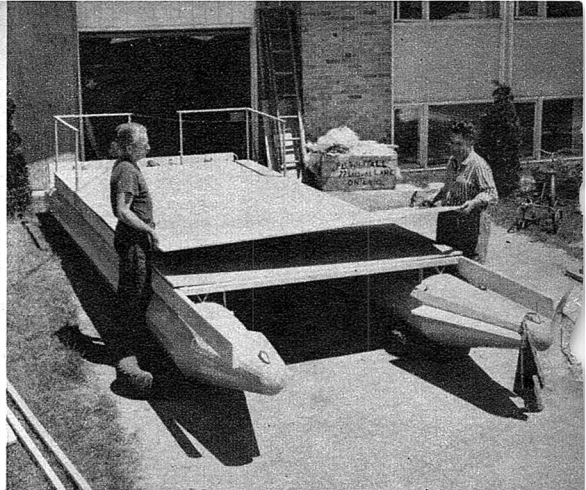
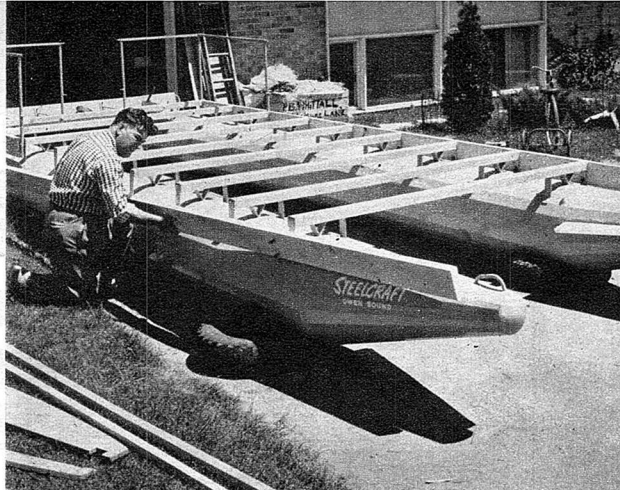
CRUISING along a river or lake on a balmy afternoon is a wonderful way to have a family outing—and the most economical way to do it all through the summer weekends is in a pontoon houseboat. From initial cost to total cost for outboard fuel and upkeep, you can't own more boat for less money.

Here in Canada we spent about \$900 to complete our houseboat, the money being divided for a steel pontoon kit, materials for the house, a second-hand outboard motor and steering equipment. The pontoon kit, complete with steel crossties, stern railings, transom and motor well, is made by Russel-Hipwell Engines, Ltd., 2202 3rd Ave. E., Owen Sound, Ontario, Canada. In

the United States, Kayot, Inc., Mankato, Minn., and Weeres Pontoon Boat Co., St. Cloud, Minn., are manufacturers who produce similar kits. All you have to do is assemble the pontoon structures and build a simple house on the deck.

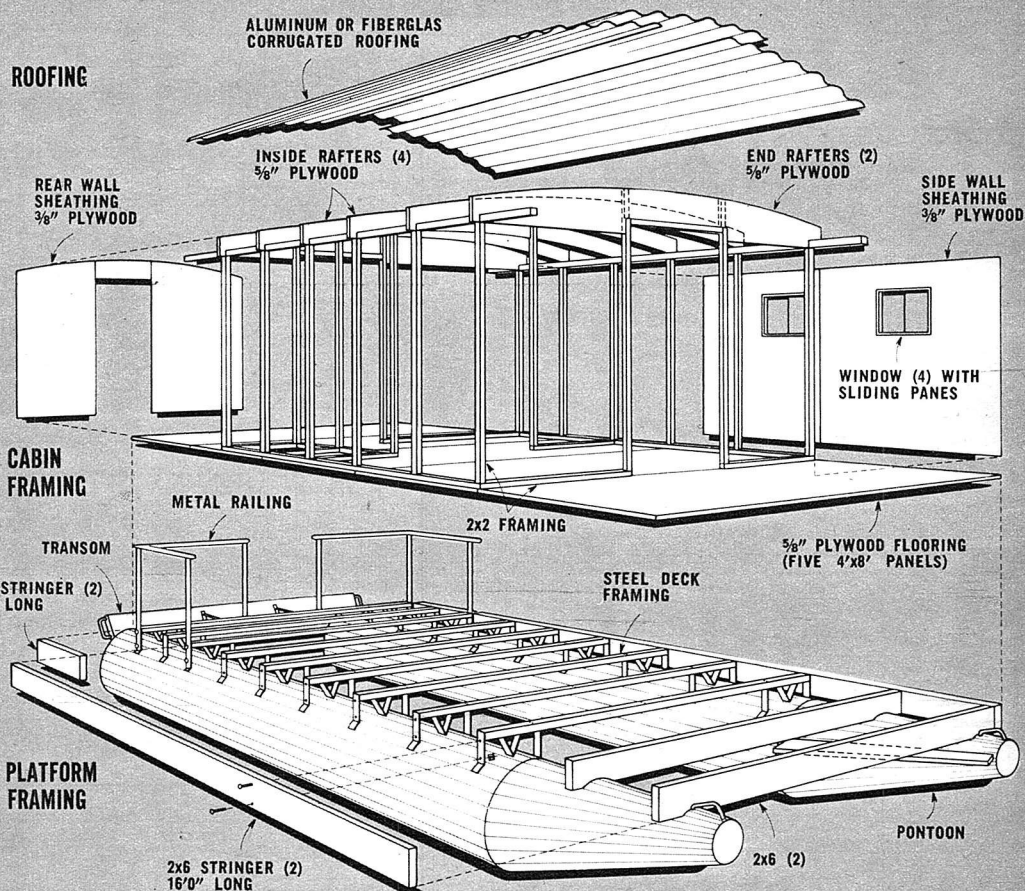
The drawings and photographs show the procedure we followed. Working in the driveway, we first bolted 2x6-inch spruce stringers along the sides of the steel deck framing, allowing them to project four feet in front. Then 2x6-inch spruce crossties were cut to fit over the pontoon nose cones and nailed between the stringer extensions. The exterior plywood deck was next bolted to the steel framing and screw-fastened.

The house sides, with 2x2's nailed



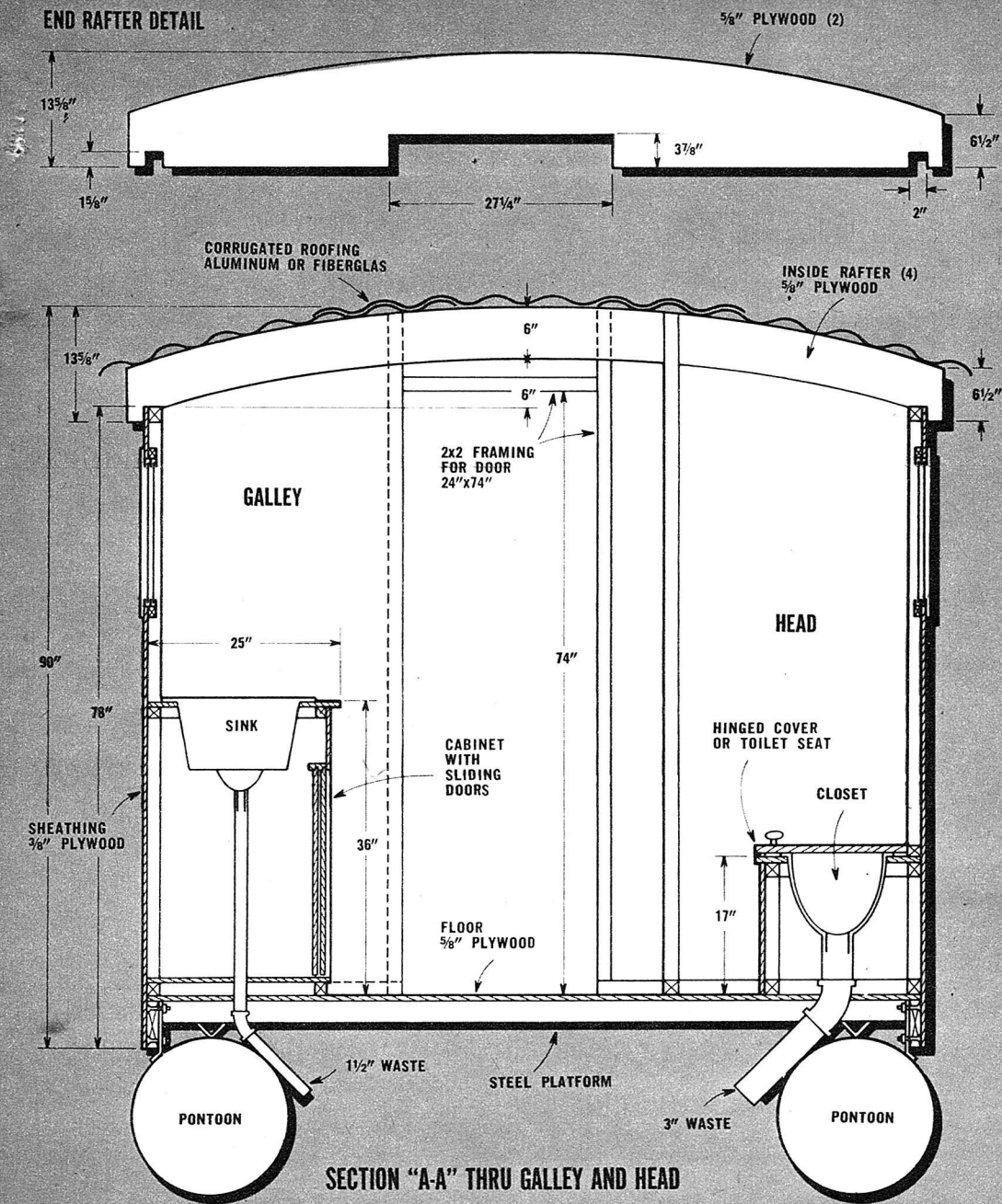
CUSHION of old tires protects pontoons as house construction begins in driveway. Side stringers are first bolted in place.

PLYWOOD FLOOR is next. It's bolted to the steel crosspieces and screwed to the 2x6-in. spruce stringers and crosspieces.



HOUSEBOAT FRAMING AND ROOFING

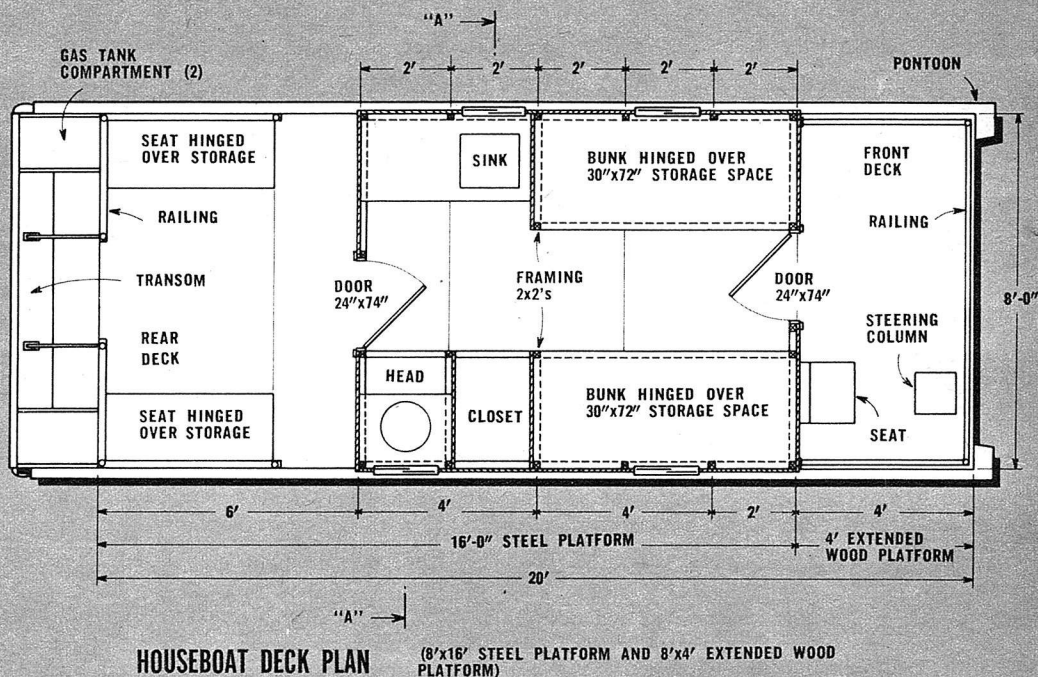
NOTE: PONTOONS COME COMPLETE WITH STEEL DECK FRAMING, METAL RAILING AND TRANSOM



across the inside tops, were next secured to the stringers with a double row of 1½-inch, No. 10 flathead brass screws. Then the curved rafters were laid out as shown, cut and toenailed to the 2x2's. It was then easy to nail the 2x2 interior framing in place and add the front and back of the house. An interior bunk and cabinet arrangement

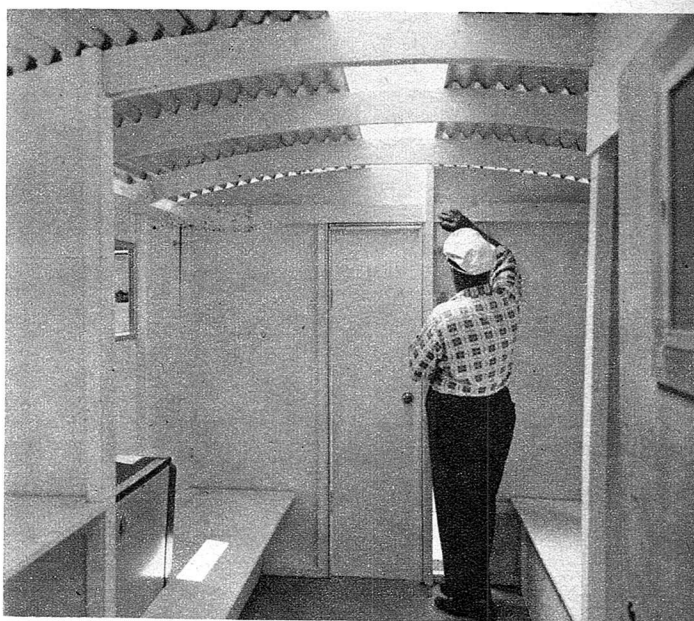
is shown but it can be changed to suit your needs. On the aft deck, roomy storage cabinets double as seats.

The windows slide in double-track extruded aluminum which is simply nailed around the openings. Choice of doors is your own, depending upon how much you want to spend. Corrugated aluminum or Fiberglas is excellent for



the roof since you'll want to keep the weight down. We used aluminum with white Fiberglas panels down the center for more light in the interior.

You can make a steering column yourself or buy one from the pontoon manufacturer along with the regular outboard-type wheel, cable and pulley system. The cable is simply led back beneath the deck framing to the motor. Our helmsman's seat is secured to a cleat bolted through the forward cabin wall and braced on the inside. A forward guard rail is made of $\frac{3}{4}$ -inch galvanized piping and provision for an awning is made by extending this piping upward at the corners. Two coats of exterior enamel and chrome kitchen counter trim on the corners finishes the job. •



INTERIOR VIEW toward the bow. This is the natural light entering mainly through translucent white Fiberglas paneling which runs down the center of the roof.

Catfish

Bike pedals turn paddles in this all-fun twin-hulled craft.

By Hal Kelly

MORE FUN than shooting fish in a barrel! Ideal for young and old, Catfish will carry a payload of over 600 pounds, is capable of doing over 4 mph, and is safe and dry to run. Perfect for lakes and ponds, we even had "it" out in the ocean to prove its safety. Catamaran in design with two sealed pontoons, it is absolutely "sink proof." Total cost to build, with fiberglassed pontoons, under 130 dollars. Total time to build, about 40 hours.

Each sponson has three ribs, six in all; four are the same size and shape. The other two are identical. The ribs may be cut to size in two groups. One jig is used for both pontoons. After the ribs are cut to size they are clamped in place on the jig. The four stringers are fastened to the ribs with 1 1/4" No. 8 flat-head screws and glue. These stringers

Two wide seats and a deck aft provide lots of kid room on this beauty. Junk yard is the source of material for mechanical parts, operation and maintenance costs are small.



are fastened to the bow and stem with glue and screws. You need not worry if the stringers do not seem to be fastened too strongly to the stem and bow since the $\frac{1}{4}$ " plywood planking, when fastened to the stringers, bow and stem, will form a strong and solid unit. The planking is fastened to the stringers, bow and stem, with Weldwood glue and $\frac{3}{4}$ " No. 16 Anchorfast nails fastened about $1\frac{1}{2}$ " apart.

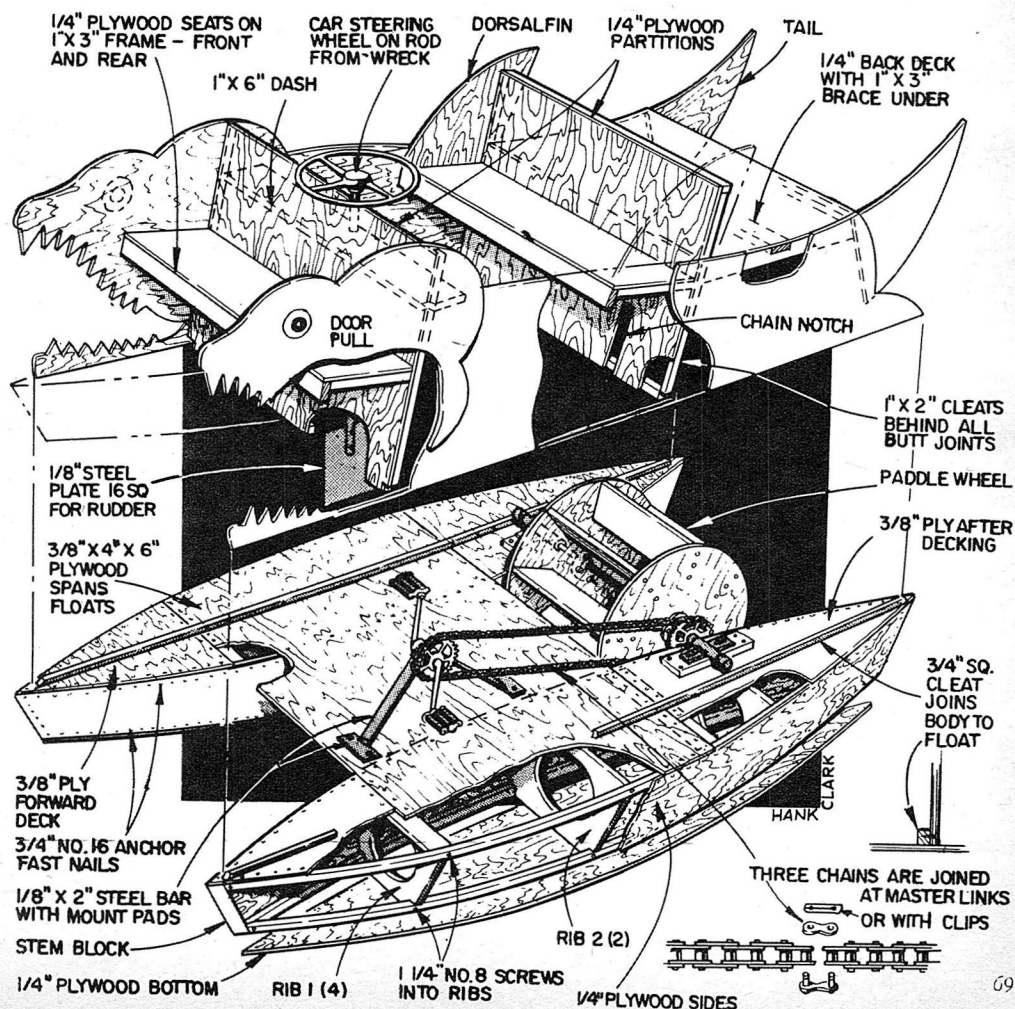
The finished sponsons are set up on a pair of horses at a workable height. A piece of $\frac{1}{2}$ " plywood is laid across the sponsons and fastened in place (check drawings for size and position) this forms the floor and central part of the top of the sponsons. The rest of the top of the sponsons are also covered with $\frac{1}{2}$ " plywood, thus sealing in each sponson as a watertight compartment. A

$\frac{3}{4}$ " sq. batten is glued and screwed with $1\frac{1}{4}$ " No. 8 screws to the center of each sponson. The sides of our fish are fastened to this with glue and 1" No. 8 screws.

The fish design not only gives our boat an attractive shape, but forms the sides. To help conserve plywood and make it structurally stronger, each side of the fish is in four sections: the body, head and two fins. You will note that the dorsal fin forms the sides for the main seat.

The $\frac{3}{4}$ " sq. framing for the seats are next and are glued and screwed in place with 1" No. 8 flathead screws. The seats and back rests are of $\frac{1}{4}$ " plywood. The front seat makes the fish heads more rigid, and provides a place for the little ones to sit. One-fourth-inch plywood is used for decking over the paddle wheel.

Having made quite a few toys and



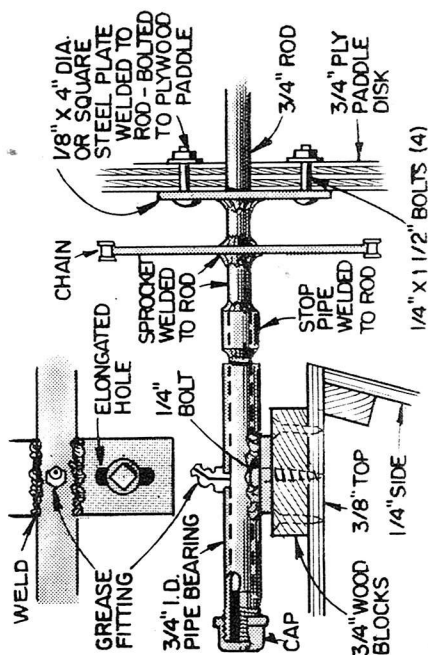
boats for children I have learned: you can build something strong enough for grownups, but never strong enough for kids. I believe your best defense along this line would be to fiberglass both sponsons, bottoms, tops, and sides. This stuff is really tough and will offer an almost indestructible bottom when the little ones beach her.

The paddle wheel, 21" wide and 30" in dia., is quite simple. If you set up a pivot point you can cut both of the $\frac{1}{2}$ " thick sides together on your band saw. The eight blades are $\frac{3}{4}$ " thick. The shaft is $\frac{3}{4}$ " round metal with $\frac{1}{8}$ " thick 4" sq. metal welded to it and screwed to the outside of the paddle wheel. The bearings are 1" pipe ($\frac{3}{4}$ " iron rod will fit nicely inside of 1" pipe). A grease fitting can be fitted to the bearings, or simply drill a hole to allow lubrication.

All the mechanism is used bicycle parts which may be obtained at your local junk yard. Total cost on this was less than a dollar. The sprockets should be the same size, so you will be running a gear ratio of 1 to 1. They can be anywhere from 6 to 8 inches in diameter . . . just so both are the same. One sprocket is welded to the paddle wheel shaft; $\frac{1}{8}$ " by 2" flat metal is welded to the peddle hub according to the drawing. Welding cost and metal ran about 5 dollars. I would suggest you buy new chain; three chains will be needed—linked together at the master links.

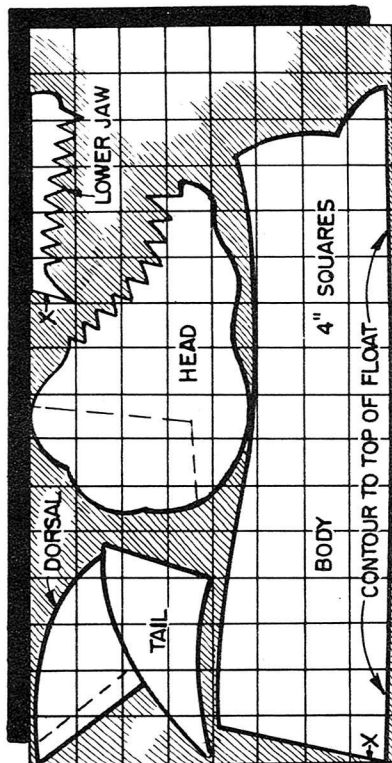
PAINTING: All the plywood that was not fiberglassed should receive one good coat of WHITE Firzite. I painted the insides and the decking over the paddle wheel a medium turquoise.

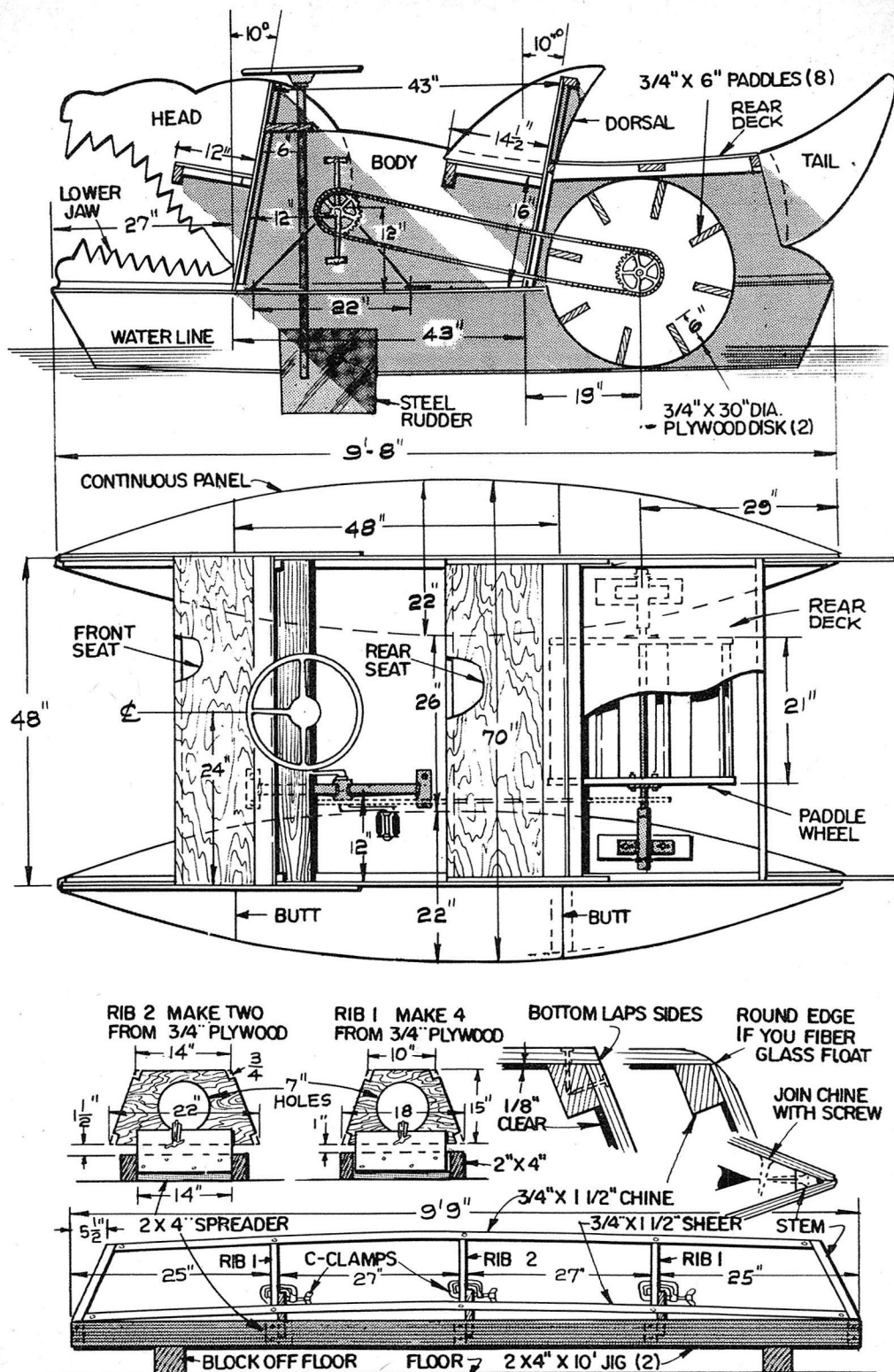
After the paint is dry the paddlewheel and peddles are fastened in place. The steering was kept very simple and trouble-free. I used a steering wheel and shaft from an old car (obtained from the junk yard) at a cost of 50 cents. I had a $\frac{1}{8}$ " thick 4" sq. plate welded to the shaft to keep the steering wheel at the proper height, a large washer was used under this plate to make for easy steering. I bolted a $\frac{1}{8}$ " thick plate 16" sq. to the steering shaft for a rudder. The fact that the rudder setup is off center will have no effect on steering. To back up or brake, simply back-pedal. •



3/8" X 4' X 8' MARINE PLYWOOD

YIELDS ALL PARTS OF FISH PROFILE





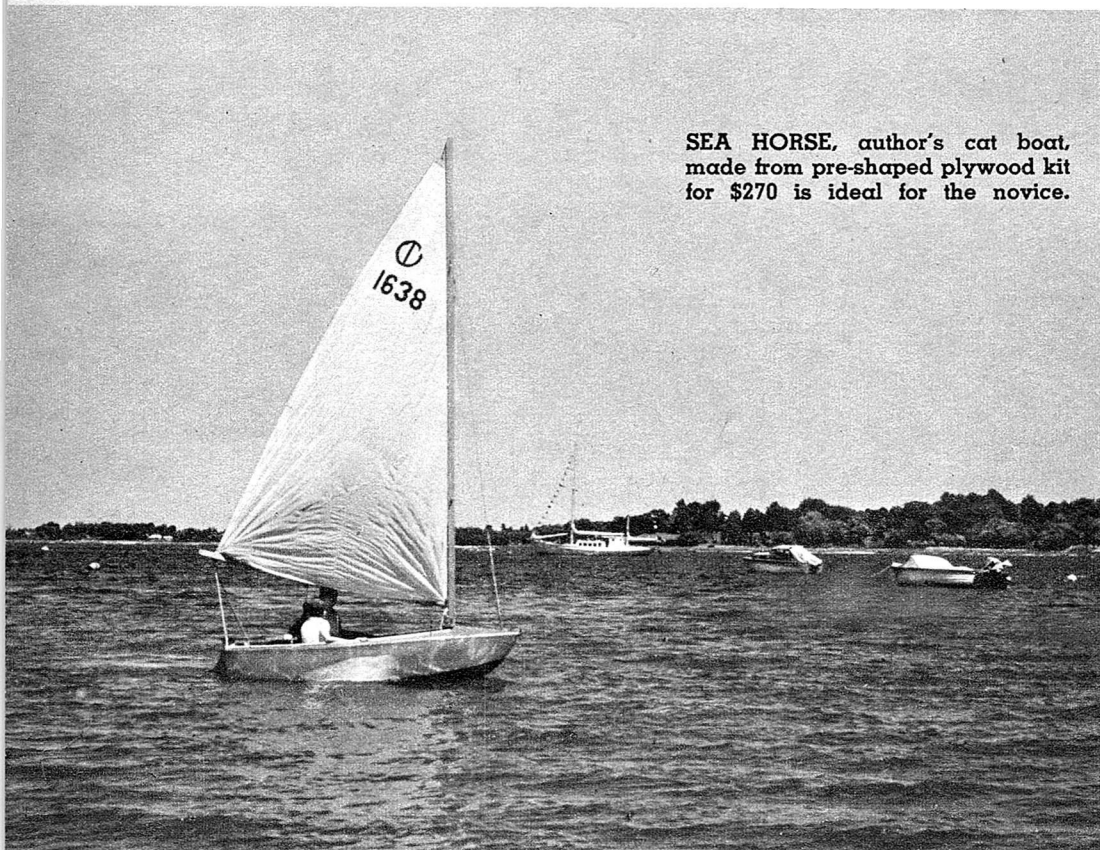
ERECTION OF RIBS ON 2 X 4" JIG

Turnabout

By George Gilbert

*This small boat can be easily built from a kit
in 21 days during spare time after work.*

SEA HORSE, author's cat boat,
made from pre-shaped plywood kit
for \$270 is ideal for the novice.



IF our family didn't include a 13-year-old boy and his eight-year-old sister, we might have bought a boat like any of the fast-growing number of water-happy families in our suburban Long Island community. But a boat to us somehow meant a sail overhead and a tiller in hand, not another steering wheel on a watery highway. Once mentally committed to a sailboat, big enough for four and yet suitable for our absolutely landlubber skill level, we found out that this meant *money*.

We hurriedly changed our course

away from ready-made boats in the direction of kits. Just as quickly we found that our problems as landlubbers had only begun. We sent off self-addressed envelopes, dimes taped to bits of cardboard, quarters sealed in tiny envelopes and soon were plowing through endless waves of return-mail paper on the playroom floor. We returned from a local boat show loaded with additional *loa's* (which, we finally learned, meant length overall), *beams* (the width of the craft) and *drafts* (depth of boat in water); but in spite of the large assortment of kits to

choose from, finding just what we wanted was not easy. One had a cockpit only for two, or, when you noted that the kit did not include sails, hardware, etc., the cost was too high. Yet another was obviously a long winter project to build, while another was too small.

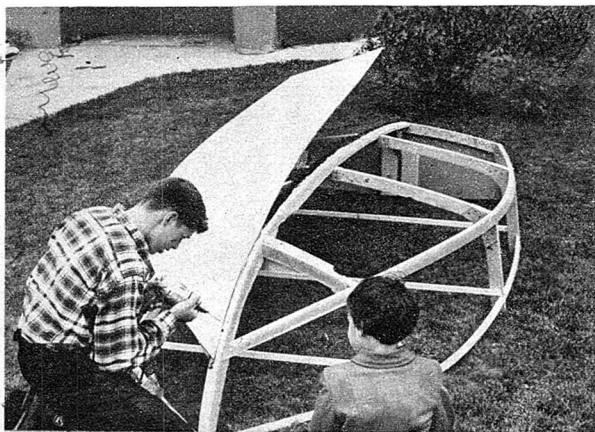
We discovered what was to become our pride-and-joy, 2,000 miles from the ocean, in pre-dinner small talk at a business convention. The top photographer with one of America's leading picture magazines, listening to our talks of frustration, gave us the lead we had been looking for when he said, "I take my four kids sailing in a Turnabout we built ourselves in a month." A few days later, we had received information about the kit and in another ten days a long, flat box lay on the garage floor, nestled against an 18-foot spar sheathed protectively in a fitted coat of waste wood. On a Saturday morning, we broke the steel straps of the corrugated shipping case, lifted out fifty or sixty odd-shaped slabs, planks, slats and strips and we were only twenty-one days from the water!

First day. Saturday, five hours. The night before we had pored over the mimeographed plans and construction drawings and knew in advance what our first hours would be like. All wood parts were numbered and no building jig was required. Pre-cut and assembled frames were to be screwed to a pre-shaped stern and keel. This was a matter of

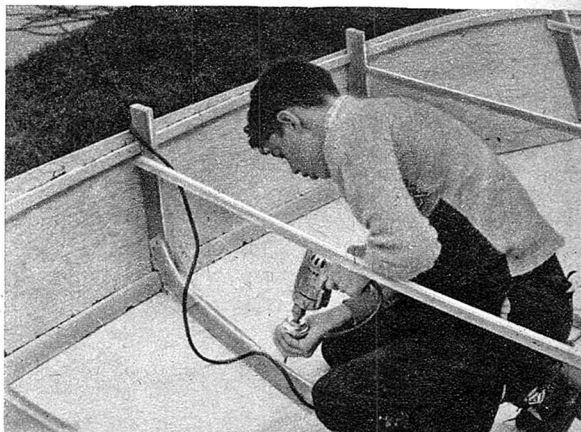
sinking large screws through pre-drilled holes into oak frames. In a matter of a half-hour, the skeleton of our boat lay "turtle" on the front lawn. Before we quit for the day, we had stretched oak strips from front to back—oops! . . . from stem to stern—and our gunwales and chines were now in place. Possibly the most amazing part of this construction to our neighbors as well as to ourselves was the ease with which a 12-foot oak strip can be tortured into a curve, screwed down and fitted to within a sixteenth of an inch.

Second day. Sunday, three and a half hours. Now we were learning what building a boat from a kit is really all about—it's gluing and screwing. Marine glue, it was amazing to learn, is a brown sticky molasses that is smeared on cold. We expected to be heating woodworker's glue. But, finding the glue in a can and so easy to use was another of the many work-saving surprises in this age of kits. The task for the day was the gluing and screwing down of one half of the bottom of our craft, a ten-foot sheet of pre-shaped plywood. When marine plywood joins oak it requires screws every two inches, along every edge of every sheet. It was here that we learned that putting in screws really comprises four separate processes: marking, drilling, counter-sinking and finally screw driving. We wound up with a collection of blistered

CHINES AND GUNWALES have been fastened. After gluing bottom sheet it is secured.



RUB STRIPS on bottom are fastened from inside, after screwing down side sheets.



palms. Next morning, Monday, we were the first customers at the hardware store. Our purchase, an automatic screwdriver attachment for our quarter-inch drill. It proved itself worth every cent of the \$7 investment.

Four more days. Monday, Tuesday, Wednesday, and Thursday, ten evening hours. By the first Sunday evening, we had moved the framework into the garage, with the numbered wood parts stacked along one wall and with our basic tools neatly at hand. During the after-work evening sessions, the Sea Horse (a name we chose two weeks after starting the project) really took form. All sheets of plywood were uneventfully joined to the keel, chines and gunwales.

Saturday and Sunday, five hours. Saturday morning, when we opened the garage door, a ten-foot Turnabout emerged. To the awed children, all that was needed was painting; to the awed neighbors, we needed only more life insurance; to our own awed selves, all we needed was to complete the long list of steps carefully outlined on six pages of the production script. The Sea Horse did now resemble a boat, but we were only two pages into the eight page production schedule. During this weekend, the centerboard assembly came together and was set in a slot in the keel. The seat-like thwart steadied it between the frames and now all the visiting children had to take turns sitting in the boat. In our enthusiasm, we could already begin to smell sea air!

Eleventh day. By the middle of the second week, the mast-step and deck supports, all pre-cut and pre-drilled ready for installation, were locked into place with long screws. With the skeleton of this framework waiting for the forward and side decks, we put our borrowed saber saw to work on the excess plywood overhanging all around. In only minutes, the power saw had ripped away the excess plywood. Some work with a rasp and then a hand plane brought the edge flush with the gunwales. The decks locked neatly over the newly cleaned edge and were then also trimmed flush. An oak rub rail covered the place where the plywood edges met.

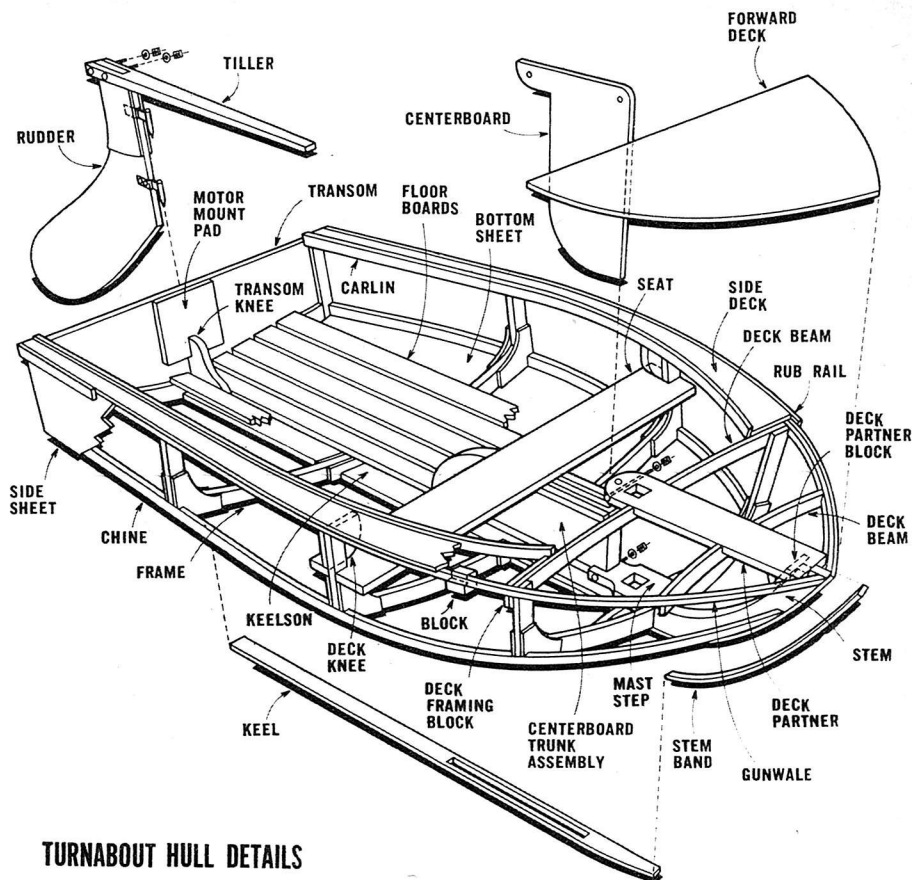
By the fifteenth day, the second Sat-

day, its construction finished, the boat sat out on the lawn in unpainted, pristine splendor. We pretended to busy ourselves slightly tapering the 18-foot mast while keeping one eye open for the older kids who now crowded around the family's new asset. We especially beamed as car after car slowed down while passing our house, proving that the children had carried home word of our activity. The down-the-street neighbors learned from their children what the up-the-street neighbors had found out first-hand from the scream of the electric saw, the whine of the drill, the pounding of hammers and the rasping of files.

The third Sunday was one for sandpapering and calking. Rough spots on edges and ends were softened or smoothed. Holes from well meant but misguided screw holes were filled with the mariner's version of putty, a thick, gummy paste that a spatula forces into seams, holes, cracks and crevices to keep out the sea. Helping ourselves from a one-pound can of calking we liberally applied it to any point that even began to look like a water entry. Anyone who has ever painted an unfinished table or bookcase can paint a boat. The marine plywood needs sealing and so son, daughter, friends and neighbors helped to splash on two pints of Firzite. By the sixteenth day, the primer coat of paint was just as enthusiastically sprinkled, spattered and spread, over bare wood, top, sides and insides. The bottom was left until the very end of the painting period when it could be given both coats while the boat rested upside down. Mast, tiller and boom were simply varnished in successive coats.

There are many kinds of marine paint, but for the small boat owner there are primarily two major types; one for above water, one for below. We used the kit's top-and-deck paint for the bulk of the boat, applying it in two coats with 24 hours in between. The bottom gets its own paint specially made to resist marine growth.

The last of the twenty-one days was spent in mounting brass hardware. This was a comical adventure as we learned to distinguish between blocks, cleats,



TURNABOUT HULL DETAILS

fairleads, goosenecks, and tracks. These, after all is said and done, turned out to be pulleys, rope guides, tie points and other seaworthy installations that simplify life aboard a sailing vessel. Now that we are real "salty," we would not dream of calling a block a pulley or the *main halyard* a rope up the mast. But we'll admit, on the evening of the nineteenth day, we invited an experienced yachtsman over the guide the final mountings. He found that we had one fitting upside down and another in the wrong place; but five minutes with the screwdriver, and we were well on the way to earning his respect as "able-bodied" seamen. The problem of identifying the marine hardware led us to consult the dictionary. In Mr. Webster's big book, we found out what the *gudgeon* and *pintle* could do for the tiller. They are the pin and eye that lock rudder to transom.

Hardware on the mast either relates to the sail, for example, the track which

secures the sail so that it runs up and down the mast; or to the main halyard that one pulls to raise or drop the sail; or to the stays that steady the mast against the force of the wind. On the boat shell, hardware guides in anchor lines, guides the main sheet (this is the key rope when you're at last under way), secures stays, halyards, etc.

The Turnabout was built with the usual hand tools and three power tools: an electric sander; a quarter-inch electric drill with assorted drills, countersink and screwdriver accessory, which took the hard labor out of putting in over 900 screws; and the saber saw we borrowed to trim the plywood overhangs. The overall length of the Turnabout is 9 feet 8 inches, beam 5 feet 3 inches, weight 200 lbs., mast 18 feet and sail area 60 square feet.

*The kit is manufactured by Harold R. Turner, Route 1A, Parker River, Newbury, Mass., costs \$269.50 including sail. **



You can do up to 30 mph with a five hp motor—more with motors up to 20 hp—and safely.

OK

*The youngsters will love this 9-ft. Junior
Runabout—and so will you.*

By Hal Kelly

THE "OK" WILL QUALIFY under A.P.B.A. rules for JU Runabout. Weight with all hardware is under 90 pounds. Fast and safe in both rough and good water. Although designed for the little Mercury 5 hp motor, and will do almost 30 mph with it, she will take any motor from 5 to 20 hp with safety. An ideal boat for the young one to learn about boating, safely. Under the JU rules she must be able to carry 3 people, this she will, and safely. To prevent overloading the cockpit area will only hold 3 people.

Very simple to build, the construction is part hydro and part runabout. After the jig is constructed (of scrap 2 by 4 lumber) it will only take a few minutes to set up the girders and ribs. "OK" is 12" deep, 5' 3" wide and 9' 1" long. She can be made 10' 2" long with a change of rib placement.

Before building, read the instructions, study the pictures and then go over the drawings. If you are new to boat building, I would suggest doing this several times.

All framework is of Sitka Spruce or White Cedar. Most mahogany plywood comes in 4' by 8'. This will have to be spliced and glued to make up the proper length for the sides and bottom. The method I show is quite simple and very strong. Most lumberyards don't want to rip battens, etc., to size. All battens, etc., can be ripped to size on a small table saw. If you don't have one, I suggest you borrow a friend's for a few hours.

The two main girders, to which are fastened all ribs and transom, must be cut to the same size and shape. Best to cut them together with all the necessary notches and lightening holes. There is just a transom and two ribs to be assembled, the other secondary ribs are fastened in place while the boat is on the jig.

Assemble the transom; all lapped joints should fit snugly. Coat mating surfaces of the joints with glue and fasten together with $\frac{3}{4}$ " No. 8 screws. Carefully notch for battens, keel, chine and sheer before assembling transom frame to transom. Glue and fasten tran-

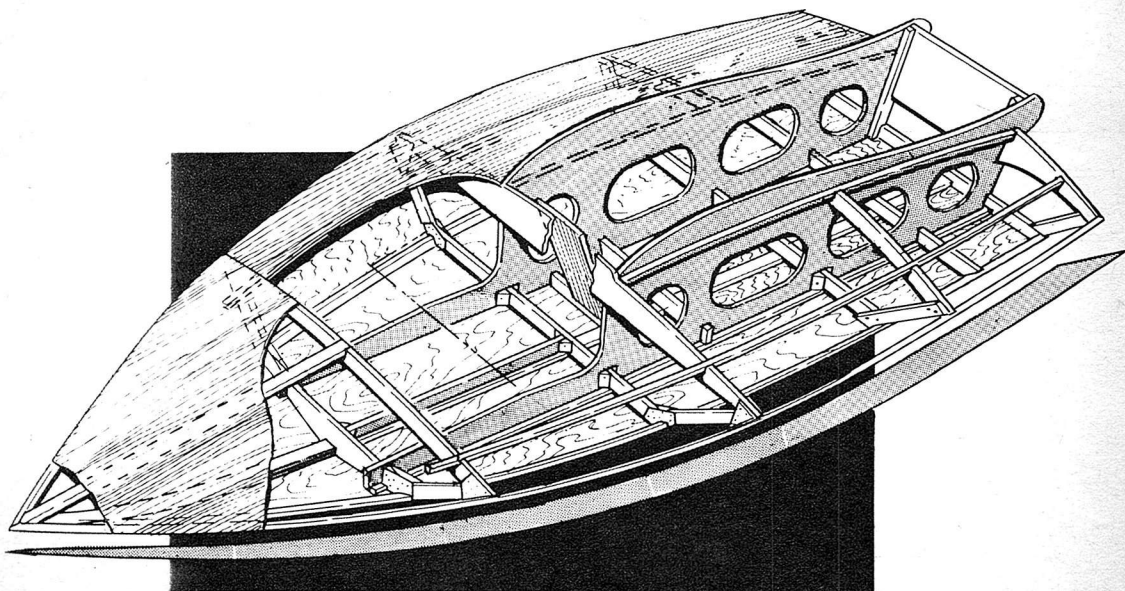
som to frame with $\frac{3}{4}$ " No. 16 Anchorfast nails placed about 2" apart. The two main ribs are fastened together with $\frac{1}{4}$ " plywood gussets, glue, and Anchorfast nails, one gusset on each side of the joint. After the frames are finished, rough-cut the notches for the chines and sheers; none of the ribs are notched for battens or keel.

The boat should be built on a level floor; with our jig it makes no difference if the floor is concrete or wood. The drawings will give you the size and shape of the jig. Study pictures to see just how the girders are clamped to the jig and just how the ribs are fastened in place. The beams for secondary ribs are slipped into the notches of the main girders. The chine is $\frac{3}{4}$ " by $1\frac{1}{4}$ ", but forward of rib No. 1 it is cut thinner, $\frac{1}{2}$ " by $1\frac{1}{4}$ ". This can be done on a band saw. The chine is glued and fastened to transom, ribs and stem with $1\frac{1}{4}$ " No. 8 screws, countersunk a bit (so you will not hit the heads while fairing). The sheer is $\frac{3}{4}$ " sq. and is fastened to transom, ribs and stem with glue and $1\frac{1}{4}$ " No. 6 screws. The sheer should be soaked in hot water to facilitate ease in bending.

Please don't underestimate the importance of fairing. If you have set up

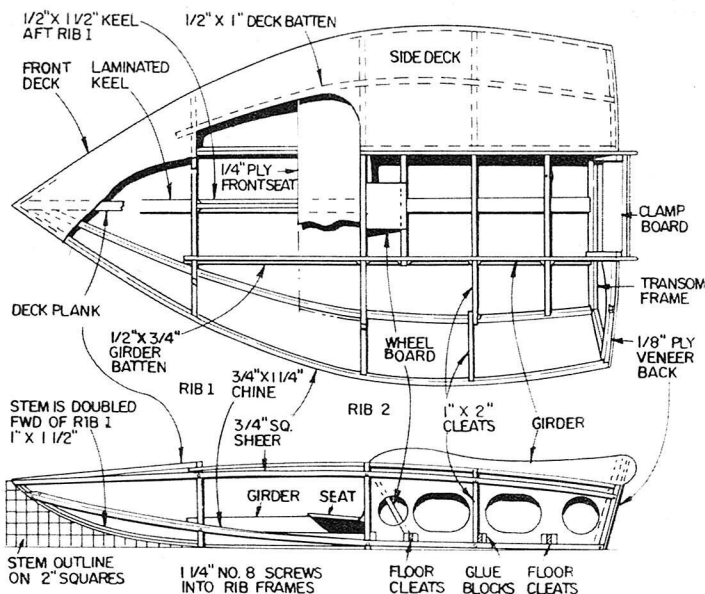
all the frames correctly all you will have to fair will be the stem and chine. But check and see if all the battens and keel behind rib No. 2 are straight; also check across the bottom, your straightedge should rest on all battens, chines and keel. If they don't you are in for a bit more elbow grease.

Planking the sides: I used $\frac{1}{8}$ " thick plywood to keep this little craft light for JU racing. If weight is no problem, $\frac{1}{4}$ " plywood can be used. A large sheet of wrapping paper will come in handy to give you a rough idea of their shape. Cut the panels a bit oversize, clamp in place. I use a few screws to hold the planking in place. The screws will also help you line up the planking in its exact position when gluing and nailing it in place. Mark off the excess, also just where the nails will go; they are spaced $1\frac{1}{2}$ " apart. Trim to size and drill small holes where the nails will go; this will save you time when the planking is nailed in place and will save you a lot of unnecessary pounding with the hammer. Use $\frac{5}{8}$ " No. 16 Anchorfast nails on the $\frac{1}{8}$ " planking and $\frac{3}{4}$ " No. 16 on $\frac{1}{4}$ " stock. After the side planking is glued and fastened in place, you will have to fair the chine again, so the bottom will fit flush and snugly to the



HANK CLARK

OK constructed upside down on a jig made of 2x4's. This 9' 2" boat can be made 10' 2" long with ribs spaced out.



LARGE-SCALE PLANS

are available for building this boat. Send \$4 for Plans, Materials List and Specifications to Hal Kelly's Plans, P. O. Box 2095, Fort Pierce, Florida. Specify FB "OK"—Plan Number 105.

chine. Remember, the bottom overlaps the sides, except the first 18" near the front; here the bottom and sides butt.

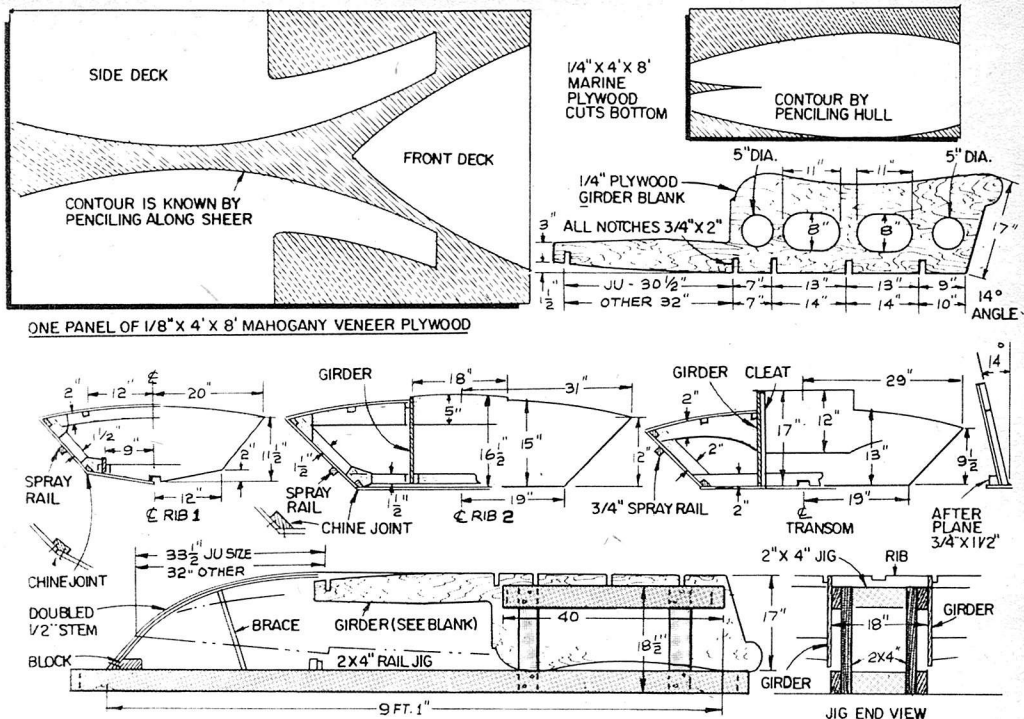
Bottom goes on much the same way as the sides and is all one piece of $\frac{1}{4}$ " plywood with a V cut out in front to allow the bottom to come up to a V up toward the front.

I built an additional safety factor into this boat. Glass Plastics Supply Co., West Elizabeth Ave., Linden, N. J., has a new product called "Tuff Foam Flotation Kit." This kit is made up of two equal parts of a liquid. Mix together in equal parts; an electric drill is best for this operation. It will quickly begin to expand forming a closed-cell plastic foam which in a short period will set and become rigid. One cubic foot of this foam will afford a minimum of sixty pounds additional flotation. I boxed off a section near the transom and made it

watertight with Saran Wrap. Into this section I poured the mixture, and when it became rigid I removed the piece of wood I used for a form. This additional flotation is a good safety factor and might well be worth a thought. Full instructions are furnished with each kit.

The decking is fastened in place similar to the bottom and sides. The nails are placed 2" apart. Again it is a good idea to predrill all nail holes. When the decking is fastened to the deck battens it is best to have a helper hold a weight on the inside of the battens, so you can pound the nails in solidly.

Study the deck plan for placement of hardware. The sides above the spray rails and decking were varnished. The cockpit coaming was painted red on the outside. The bottom up to and including the spray rails are red. In this case the red color was mixed with the fiber-



glass resin; the spray rail was painted a matching red.

I highly recommend fiberglassing "OK". The cost for the resin, cloth and color is under 15 dollars. A good bottom paint will run you a fast 5 bucks, and will need to be redone each season. It doesn't take an accountant to figure that the fiberglassed bottom will be cheaper in the long run. I fiberglassed the bottom of my Wide-A-Wake, a 15' run-about, and though the topsides and decking have been redone many times, the bottom is still like new after 5 years of hard use.

I used a medium weight 44" wide cloth by 9' long, 3 qts. of Boat Armor and a jar of red color. First give the bottom a coat of resin (takes about 1/2 qt.) using a brush. After this has "kicked off" I laid the cloth on the bottom and trimmed to size. The cloth removed, a coat of resin was applied to the bottom. The cloth laid in place and working from the back to the front, more resin was applied. A paint roller was used to spread the resin smoothly and to make sure the cloth was fully impregnated. The next day, with a disk

sander, I carefully ground off the high spots, and feathered the cloth off on the sides. With a heavy weight and open-cut sandpaper under it I worked on the bottom, sanding out any hooks and rockers. If you are working on a perfectly flat bottom for racing, this will take about an hour of backbreaking labor. The last 3' should be flat; the flatter the faster you will go! One last coat of resin was applied to the bottom with a good brush (the brush can be cleaned with acetone). After this has "kicked off", the bottom was wet sanded with a wet-and-dry sandpaper. The last 3' I went over with a lacquer compound until it had a plate-glass finish.

Now for the test run! If you are racing be sure to have a good sound regulation helmet, and a good life jacket with a collar. Motor angle and height are very important for racing, a motor 1/8" too high or low has lost many a race. Transom height on "OK" is 17" high, a good starting point for most motors. If you are not going to race her, a false keel about 3/4" sq. and ending about 18" from the transom can be used in place of a fin. •



Designed for family comfort and safety, this craft is rugged enough to do up to 30 mph.

Dreamer

Trim, yet roomy, this 18-ft. day cruiser has a wide 7-ft. beam.

By Edwin Monk

THE CLEAN, HONEST LINES of this trim day cruiser will provide exciting new pleasures for the week-end skipper! She's designed for family comfort and safety with a spacious cockpit and deep freeboard. Roomy cabin gives all-weather protection and generous living space. Big windows for all-direction visibility. Rugged hull design is built for motors up to 40 hp and speeds to 30 mph. This boat will take skill and patience to build—but not more than the real boat-minded amateur can master.

Layout: Making a full-scale drawing of each frame simplifies building the skeleton of your boat. You can use one of the fir plywood panels ordered for planking as a layout board, a long edge of the panel serving as a base line. Draw a center line at right angles to this edge, and plot the water line, set-up line and buttocks as shown in the plan.

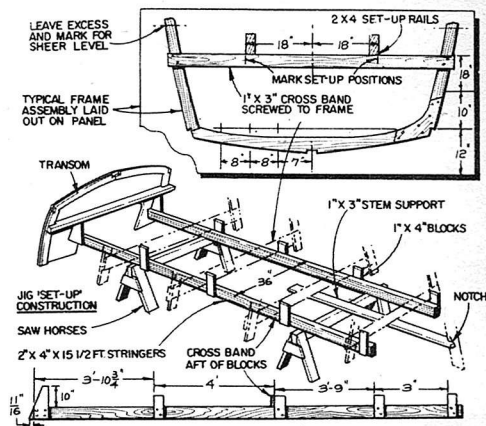
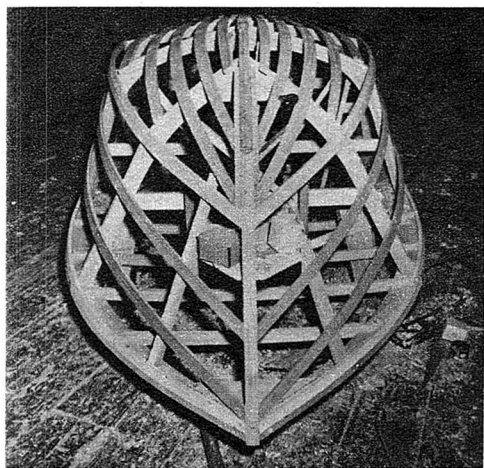
If you number the outline of each frame, you can superimpose all frame layouts on this one set of reference lines.

You can lay out the inside edges of the frame members, which are straight, with a straightedge. To establish curved outside edges, measure from the jig line and center line, locating the dimension points shown on the plan. Tack brads at these points. Then bend a $\frac{3}{8}$ "-square batten around the brads and draw the curve along the batten.

Next transfer your layouts to the frame lumber. One way to transfer curves is to set tacks along the layout line, pressing the lumber down over them to mark it. You can connect these marks on the lumber, using brads and batten again, to reproduce the curve. Then lay the hardwood over the layout and re-draw all straight lines with your straightedge.

All the frames are symmetrical. When you've cut one side member for a frame to shape, turn the piece over and use it as a pattern for the other side.

Line up the parts for each frame in turn directly over the corresponding



Dreamer is built upside down on a jig frame of 2x4s as shown in photo and drawings.

layout. Tack the $\frac{3}{4}$ " oak gussets in place temporarily and drill screw holes. Then remove these pieces, spread all joining surfaces with waterproof glue and screw frame together permanently.

The marked side of each assembled frame is called the "molded face," which in the construction drawing faces aft. Roughly bevel the frame edges to or from the molded face with a jack plane, taking the approximate angle directly from the plan with a carpenter's small bevel.

Next mark and cut the frame heads. Because the frames support the mahogany shelves, or side decks, they must be cut off at the proper camber exactly $\frac{7}{8}$ "—the thickness of the shelf timbers—below the sheer line. Take the camber from the deck beam layout.

You won't need to make a preliminary layout of the stem and forefoot. Draw the outlines on the oak, and when you've cut them out, join them with cheek pieces. Roughly bevel this stem assembly with a drawknife or plane. Mark the sheer line on the stem and the location of frame No. 1 on the forefoot.

Remember to notch the transom frame for the battens before assembling it to the transom panel. These notches are cut in the frame only, not in the panel.

Setup: Spike the two 2 x 4 setup stringers—the temporary backbone on which you build the hull—across saw-

horses fastened securely to the floor. See that they're parallel and level. Then lay out frame locations on the stringers with a large steel square, nailing cleats to the outer sides of the 2 x 4's at these marks.

It's easiest to rough out notches in the frames for the chine battens before erecting the frames on the stringers.

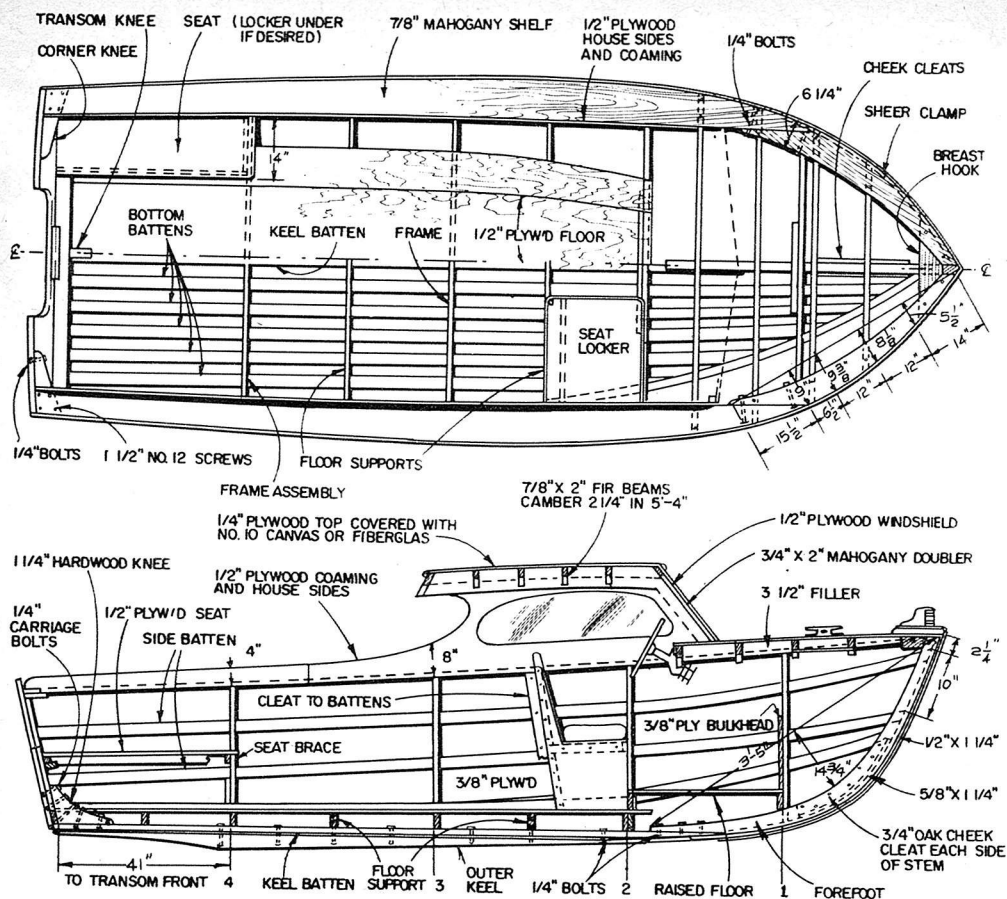
Nail the transom panel to angled cleats on the after ends of the stringers, aligning the setup line on the panel with the tops of the 2 x 4's. Driving the nails through small blocks of scrap wood will make it easy to pull them later.

Now set up the frames, fastening the crossbands to the positioning cleats. Check them for alignment and for plumb as you mount them, and when all the frames are in place, tack strips of scrap wood across the edges to brace the structure temporarily.

Then fit the stem assembly into the notch in frame No. 1. Cut a positioning piece, shown in the plan, to line and brace the stem.

This done, you can try the keel batten in place. Mortise the after end of this strip into the blind notch in the transom frame. Screw and glue the batten to each frame and to the forefoot, countersinking the screw heads well below the surface.

Lay out the curved forward pieces of the mahogany shelves from the plan, saw them to shape and tack them to the main shelf timbers. Try these shelves



in place, trimming the frame heads if necessary, and when you've installed them, fit the plywood knees at the transom. Then bolt in the breasthook and deck beams.

Sheer battens must be beveled with a plane to lay against the shelf timbers. Screw and glue these battens to the shelves and to the frame edges.

Using a rasp or hand chisel, trim out the notches in the frames for the chine battens. Bending a test batten across the notches in adjoining frames will indicate the bevels required. Then, when you've planed both chine battens to a taper, try them in place, holding them with C-clamps, and carefully miter the forward ends to butt against the stem. Use screws and glue to fasten these battens down. Deeply countersink all screw heads.

Next correct the stem bevels. Bending a $\frac{3}{8}$ " plywood test strip across the frames and stem shows the exact angle.

Now screw and glue side and bottom battens to the frame edges.

"Fairing up"—truing the curve across the framework—is an important step. First bevel the edges of the shelf timbers to fair with the sheer battens. Then plane bevels along the chine battens. To fair the side battens, spring a $\frac{3}{8}$ " plywood test strip across them to locate high spots, and planing off a little at a time, correct the bevels. Fair the bottom battens similarly. Work carefully, checking progress with the test strip as you plane, until you're sure the plywood planks will lay up tightly against the framework from stem to stern.

Side and Bottom Planks: Clamp the plywood in place and pencil around the framework to mark the rough shape of the planks.

Along the sides of the hull the bottom planks overhang the chine battens $\frac{3}{8}$ " to cover the edges of the side planks. From about frame No. 1 forward, however, where the angle between the planks flattens, the plywood can butt edge-to-edge. For this reason the plank-



Length is 7 feet 9 inches, beam is 4 feet, depth is 14 inches. Weight is about 79 pounds.

Ring-a-ding

Even an amateur can do a professional job on this fine design.

By C. P. and E. D. Burgess

Plan revisions by Edwin Monk

HERE'S AN IDEAL all-purpose plywood dinghy. Handy for the yachtsman who needs a strong seaworthy craft or the sportsman who needs a lightweight cartop boat. It is easy for youngsters to row, yet sturdy enough for a small outboard motor. With all these features this little dinghy is simple enough in design for even a beginner to tackle—by following these simple instructions.

Before you begin work, study this plan until the details of each step in construction are clear in your mind.

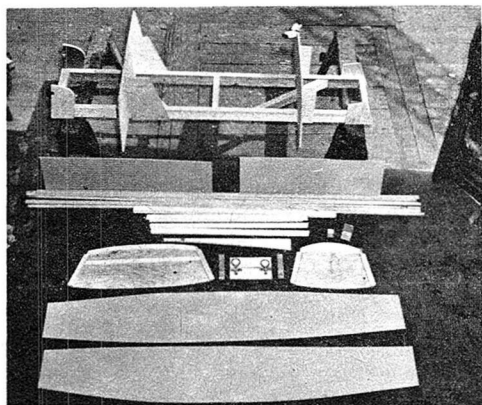
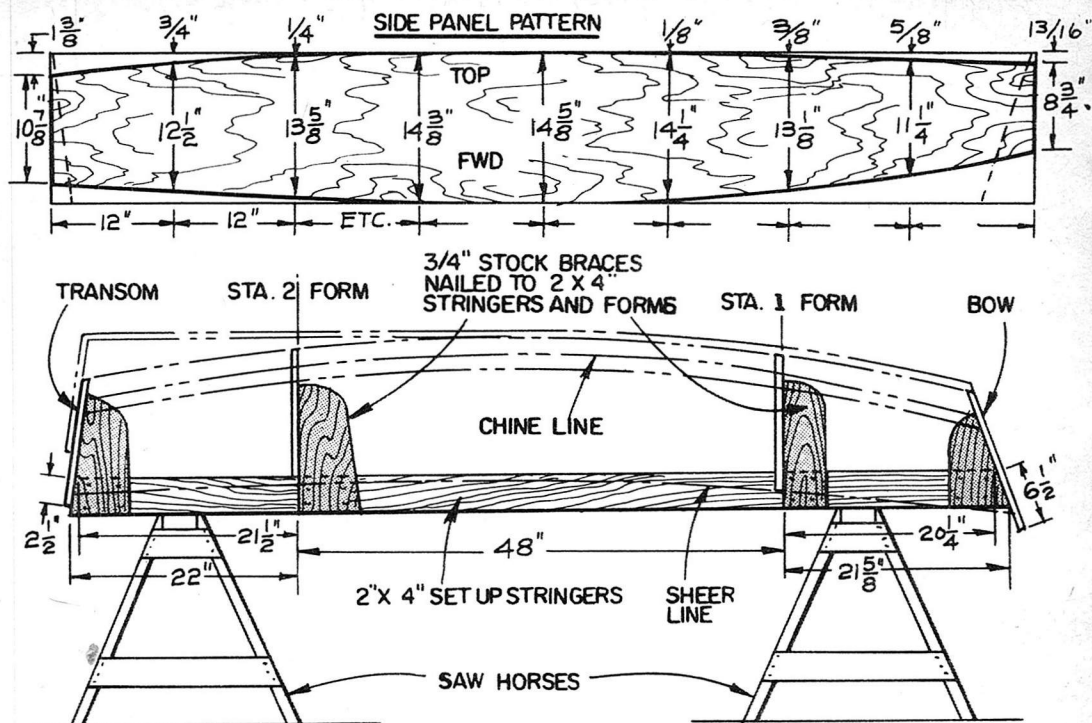
Layout: First draw full-sized outlines of the bow and transom panels on the $\frac{1}{2}$ " fir plywood. To lay out the curved

bottom of the transom, tack brads at dimension points. Then spring a $\frac{1}{4}$ "-thick batten around these brads and draw the curve along the batten.

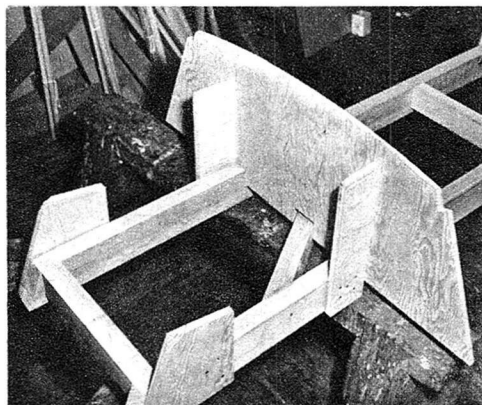
Either cut out the panels with your saw angled to cut the bevels shown in the plan, or cut the panels slightly oversize and bevel to the outlines with a plane.

Note that the notches for the chines are cut in the hardwood frames only, not through the plywood bow or transom. Assemble the frames to the panels with waterproof glue and 1" No. 8 flat head wood screws, bronze or brass.

It's not necessary to bevel the edges of the molds. Notch them for the chines,



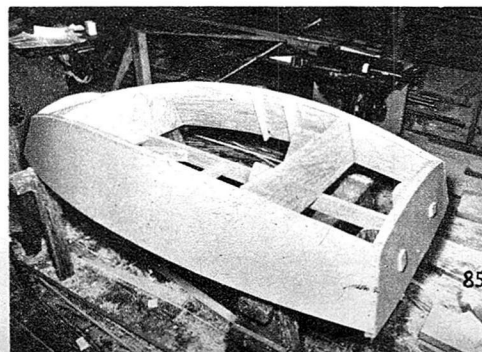
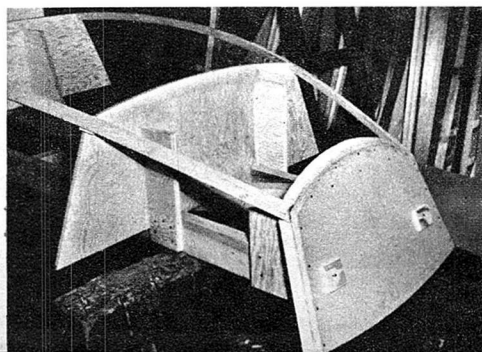
Set-up jig, parts and pieces for the pram dinghy are shown here. Assembly is simple.

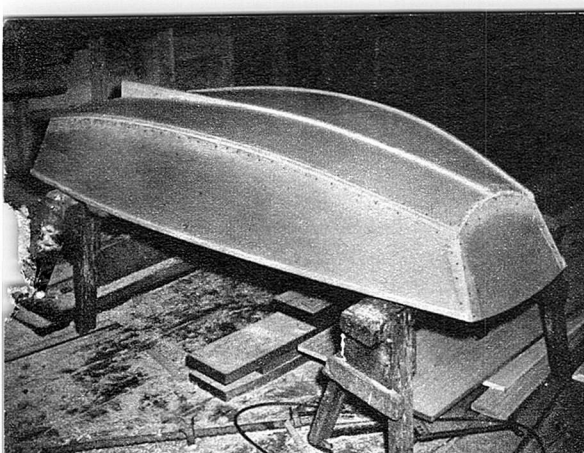


Bow end of construction horse set-up. The solid frames allow the chines to be bent on.

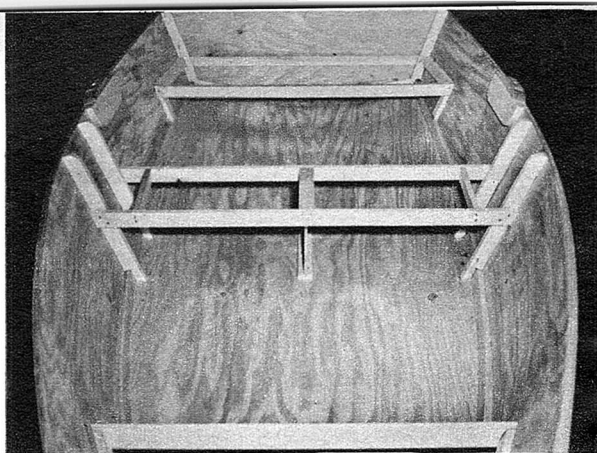
Photo shows chines fitted into notches in frames and transom. Frames will come out.

With sides installed, 1x2" framing members are now fastened in place as shown below.

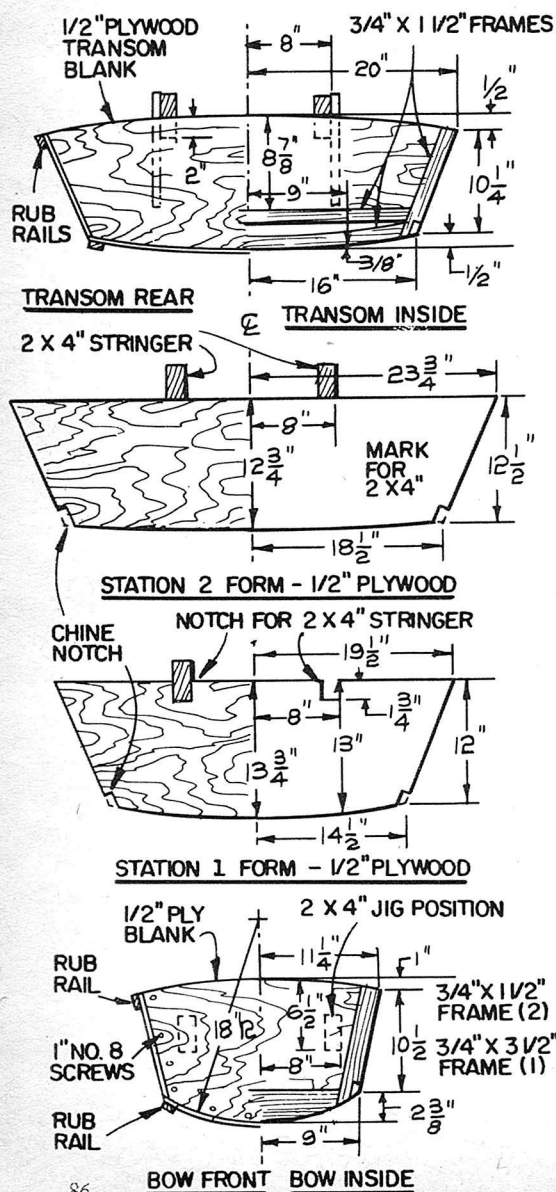




Bottom piece is clamped, braced and set in candlewicking and glue for watertight fit.



Amidships and stern seat frame detail. The solid frame molds are now no longer needed.



however, and notch the mold for Sta. 1 to fit over the setup stringers.

Setup: Assemble these stringers—the temporary backbone on which you'll build your dinghy—as shown in the plan. Mount them across sawhorses or solid crosspieces. When you've checked to see that they're parallel, level and ends lined up exactly, nail them down securely. Then measure off locations for the two molds and fasten cleats to the outer sides of the stringers at these marks. Nail the molds to these cleats.

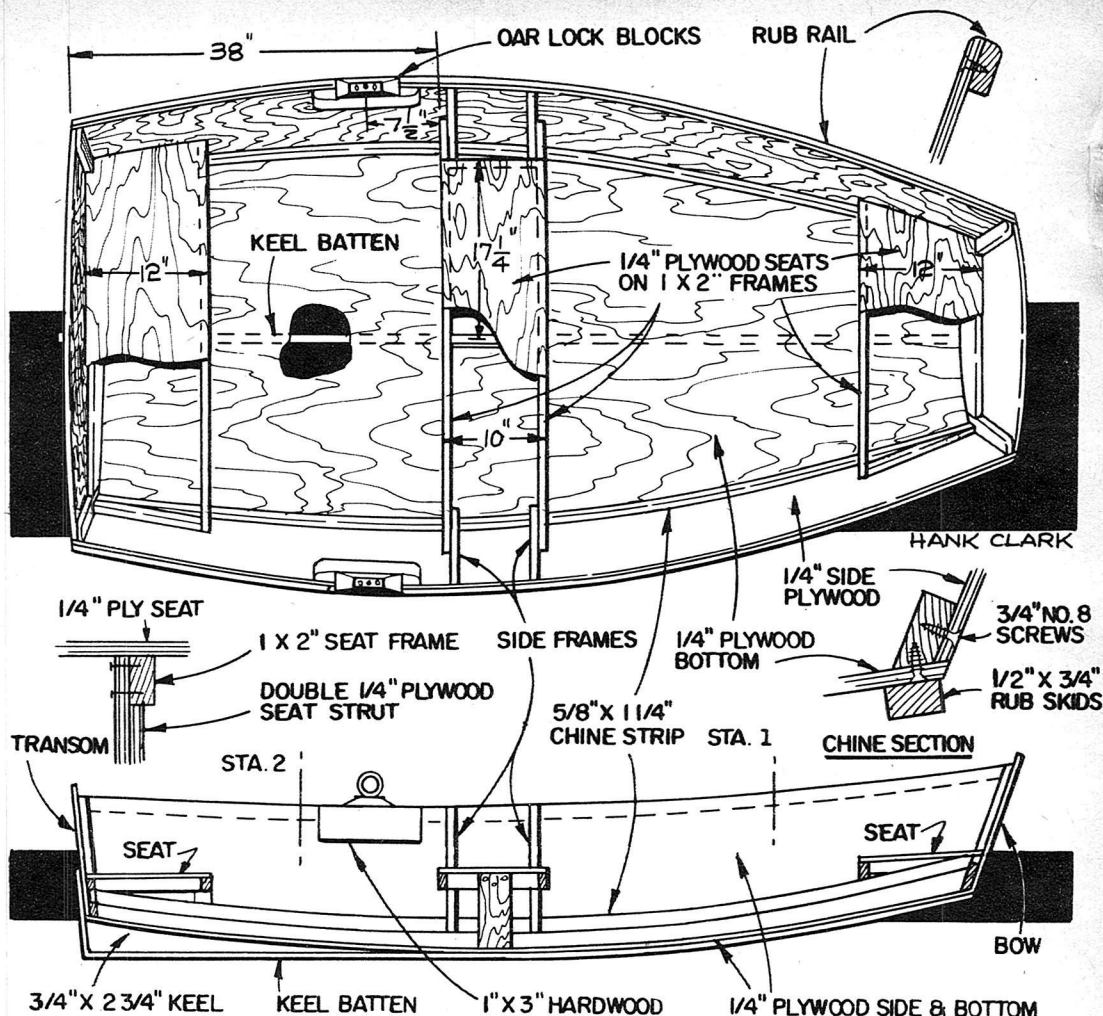
When you fasten the bow piece and transom to the ends of the stringers, nail through scrap wood "washers." This will make it easy to pull the nails later.

Now you're ready to fit the $\frac{5}{8}$ " x $1\frac{1}{4}$ " chines. Mortise the ends of these strips carefully into the blind notches at bow and transom. Glue the ends, and screw them to the hardwood frames with $1\frac{1}{2}$ " No. 12 screws. Countersink the screw heads deeply.

Plane each chine to fair with the bow and transom, and also fair up the bevels on the frames. Springing a strip of $\frac{1}{4}$ " plywood across the framework will show you the exact bevels required. Working carefully with your plane, take off high spots and correct the bevels until you're sure the side and bottom planks will lay up tightly against the framework at all points.

Side and Bottom Planks: Side planks are fitted first. Saw them to the approximate shape shown in the plan, allowing enough material for trimming, and clamp them temporarily in place to check the fit.

Before fastening them permanently,



spread waterproof glue along the bow and transom assemblies and the chines—not along the edges of the molds, of course. It's wise to lay in lengths of glue-soaked candlewicking or string along the frames for added leak insurance.

Fasten the sides with $\frac{3}{4}$ " No. 8 flat head screws spaced about $2\frac{1}{2}$ " apart. If you wish you can substitute patent bronze or Monel nails for screws.

To mark the shape of the bottom plank, clamp and brace the plywood over the framework and pencil along the chines, bow and transom. Fit and fasten the bottom, using candlewicking to seal the joint. Then plane the edges flush with the sides.

When you've screwed on the rub strips, keel batten and guards, you're ready to turn your dinghy right-side-up.

Finish Detail: Drive small nails through the side planks into the molds to hold the molds in place.

Then remove the setup stringers and fit the seats.

To fasten seat risers and supports, drive screws through the plywood sides into these members.

Take a "dry run" in your boat on the shop floor to position the rowlock blocks as you want them. •

LARGE-SCALE PLANS

are available for building this boat. Please send 25¢ to American Plywood Association, 1119 A Street, Tacoma 2, Washington. Specify FB Ring-a-Ding, 7'-9" Pram Dinghy, Plan #30.



This neat little cabin cruiser will sleep two, has a carrying capacity of about 650 lbs.

Waterwing

Here is 14½ ft. of easy riding, fast moving economical comfort.

By Gene Edmonds

THE WATERWING was designed to provide a sturdy, safe, soft-riding family boat that can be built and powered at moderate cost. Excellent for skiing, fishing or scuba diving, the Waterwing rides fast and dry. This boat has all of the features of "the big ones" in that it has style, comfort and durability. It sleeps two and will carry a small family for many happy hours of boating pleasure. Easy to launch and tow, the Waterwing is also easy to build. Construction details follow:

The hull is assembled by working from the transom forward. A framing jig is unnecessary. Select a smooth flat surface, table or work bench and lay out full size, half section patterns of the frames, gunwale, and transom.

Lay out a full size pattern of the stem. Establish measurements and points of reference from the plans. Draw curved lines by using a ¼" by 1" by 8' fir batten strip. Patterns may be made of ⅜" or ¼" plywood and cut with a saber saw. Cut the edges of the framing members square except the top and bottom edges

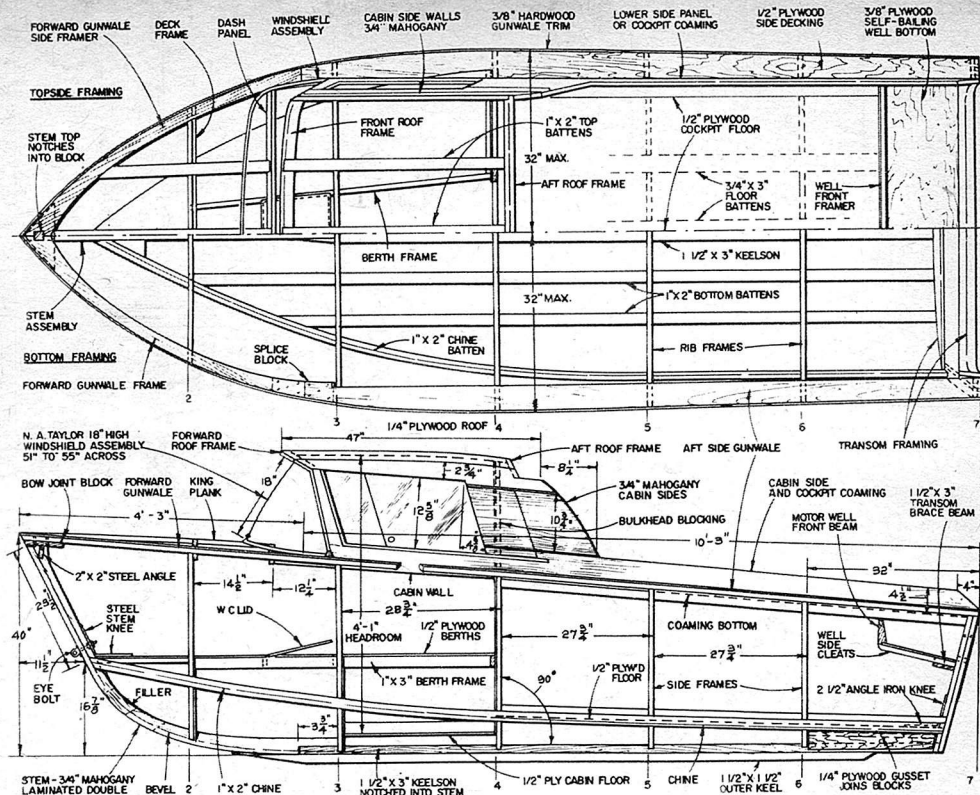
of the transom and the top and bottom edges of the bottom of frame 7. Cut these edges at a 14-degree angle. Glue and nail the bottom of frame 7 to the transom.

Lay out and cut the right and left inside aft panels from ¼" marine plywood. Glue and nail batten strips to the top and bottom edges. Glue and nail the sides of frames 4 through 7 to the panels at the locations and at the angles shown.

Place the top edge of the transom and the top edges of the panels on a smooth level surface (upside down) and glue and nail the sides of frames 7 to the transom. Keep the measurement between the outside bottom edges of the assembly at exactly four feet.

Cut the aft deck of ½" exterior grade plywood to length with the aft edge beveled to fit evenly against the transom. Glue and nail batten strips to the underside of the deck. Place the deck on the panel and transom assembly and bevel pieces to fit evenly against it.

Turn the assembled section right side up and secure in a level position. Join



the forward and aft sections of the gunwales with blocks. Place the gunwales on top of the assembly and nail temporarily at the transom and station 4. Fasten a line or cord to the center of the transom, top edge; draw it over the center mark of the temporary brace at station 4 and align and center the gunwale joint at the bow. Bevel the top edges of the transom and frames to fit the underside of the gunwales.

Carefully turn the assembly upside down. Assemble frames 2 and 3 by gluing and nailing. Fasten frames 2 and 3 to the gunwales with 2" steel corner angles. Hold the bottoms of the frames in place with a temporary brace fastened to station 4.

Glue and laminate the stem and fasten in place with 2" steel corner angles on each side at the stem block and a 2" angle on the forward side of the bottom of station 3. Bevel the keelson aft edge to fit evenly against the transom and cut to length to fit in the stem notch. When the keelson is in place be sure all inside edges of the gunwales touch the floor or assembly surface.

Mark the chine location on the stem according to the plan. Bevel and cut the

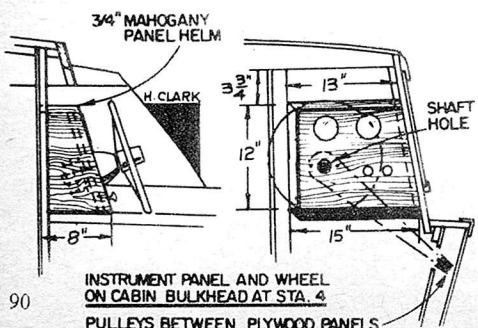
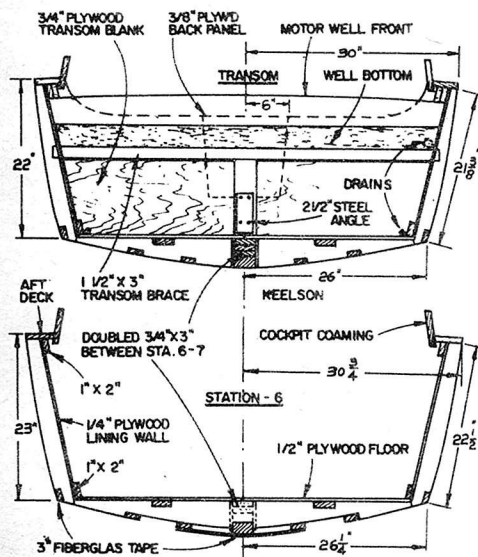
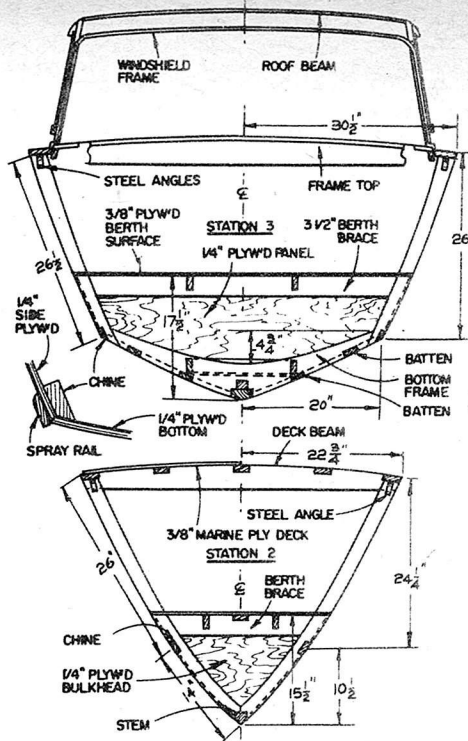
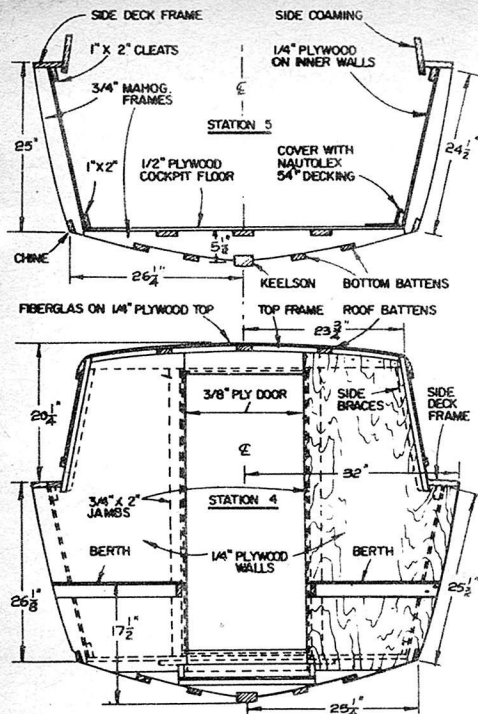
chine joint at the stem with the chine laying in the notches of stations 2 and 3. Fasten the chines to the stem, cut to length, and working forward to aft fasten to the frame with wood screws.

Turn the hull assembly right side up. Lay out and cut a half section pattern of the berths. Cut slightly oversize and place in the hull to determine the exact length and to cut the notches for frames 2 and 3. Cut and fasten the berth under frames to the hull. Cut the berths from 3/8" marine plywood, fit, glue and nail in place. Fasten the outside edges of the berths to the side plywood hull covering with resin and 3" fiberglass tape before painting the inside of the hull.

Lay out, cut, and install the motor well; motor well front brace, trim, and transom brace. Before painting the inside of the hull, apply resin and fiberglass tape to all well seams and cover the top of the well bottom with resin and fiberglass cloth.

Fair and bevel the outside edges of the berths and gunwales from station 4 forward to the stem.

Lay out, cut, and fasten the foredeck members to the assembly. Pieces may be secured to the gunwales on the un-

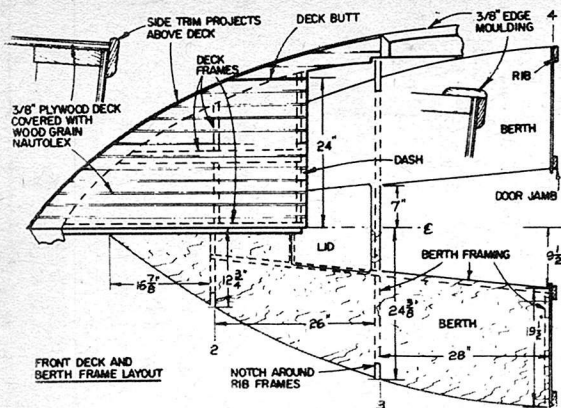


derside with 1/4" by 2" by 5" plywood gussets. Glue and nail. Lay out and cut the foredeck 3/8" oversize from 3/8" plywood. Bevel the outside edges of the deck to align with and continue the outward slope of the plywood side covering after it is in place.

Install the double pulleys on the right inside aft panel. Remove the steering wheel from the hub and wrap the tiller cable around the hub. Fasten in place with a piece of tape. Run the tiller cables through the forward pulleys along the outside of the panel; through the side of the frames; through the aft pulleys; into the well and fasten in place temporarily. Install a pulley on the side panel in the left aft corner of the well about even with the motor edge of the transom. Run one tiller cable to the right motor pulley and secure to the right tension spring. Run the other cable across the transom to the left pulley back to the left center pulley and secure to the left tension spring. Allow 2 feet of excess cable at each spring for later adjustment.

Turn the hull upside down and place on three benches or sawhorses. Fair and bevel the stem, chines, frames, keelson, etc. Use a coarse wood rasp and jack plane.

Place the 16 ft. pieces of plywood for



LARGE-SCALE PLANS

are available for building this boat. Please send \$20 for complete blueprints, materials and specifications lists to Gene Edmonds, 7800 McCella Court, Westminster, Colorado 80030. FB Waterwing.

the boat sides against the assembly and hold in place with clamps or temporary nails. Carefully mark a line over the center of the stem and cut with a hand saw at an angle that will cause the two side pieces to join evenly and come to a point at the stem. Mark and cut the sides along the gunwales transom and chines. Cut slightly oversize with a saber saw.

Cover the bottom of the hull with two pieces of 14 ft. plywood. Clamp or temporarily nail the plywood at the center of the keelson. Mark and cut, with a saber saw, slightly oversize to overlap the side plywood at the chines and to butt against it forward of station 3. Trim and bevel the edges to align with the transom, and hull sides aft of the butt joint ahead of station 3.

Apply resin and 3" fiberglass tape along the bottom seams of the hull; across the bottom of and up the sides of the transom and on the stem seam. Glue and nail the lower side trim to the hull. Cover the hull bottom with resin and fiberglass cloth. Use two pieces of cloth with an overlapping seam along the center of the keelson. Cut the cloth along the outside bottom edge of the trim. Sand with a belt sander.

Cut, glue, and fasten the keel in place with wood screws; shape; cover with

two layers of 3" fiberglass tape; and sand smooth. Apply two layers of tape from the front of the keel along the stem to the bottom edge of the hull sides and sand smooth. Spray or brush paint the hull with polyoxy white. If desired the bottom of the hull may be painted bronze, copper or gold and the bottom side trim black.

Turn the hull right side up, apply decking adhesive to the foredeck and cover with white Nautolex decking. Cover the Nautolex with heavy paper fastened with masking tape.

Lay out and cut the pieces for the cabin. Glue and nail the cabin walls to the top cabin brace and glue and nail station 4. Assemble the cabin sides with the windshield brace secured in place temporarily. Place the cabin sides in the hull, fit, and bevel the inside gunwale edges to fit the cabin sides. Nail in place temporarily. Install the windshield on the foredeck; cover with heavy paper fastened with masking tape; and adjust the windshield brace to fit the aft edge of the windshield frame. Fasten the braces in place with glue, steel straps and wood screws. Fasten the cabin sides to the gunwales with wood screws. Cut and bevel the front cabin brace to fit the top edge of the windshield frame and fasten in place with glue and wood screw. Space evenly and drill three $\frac{3}{16}$ " holes through the top of the windshield frame and fasten it with wood screws. Fill in the open top corners at each side of the windshield with wood blocks and plastic wood. Sand and coat with resin as the cabin top is fiberglassed. Fit and fasten the top cabin battens in place.

Fair and bevel side pieces, top battens, and front and rear braces to fit the plywood cabin top. Nail and glue the cabin top in place with a seam over the center top batten. Channel side pieces for the side window glass, glue to the cabin side at the top and shape to conform to the cabin top contour. Cover the top of cabin and side pieces with resin and fiberglass cloth.

Apply decking adhesive and install white Nautolex decking on the aft deck. Install the aft deck aluminum trim strip.

Cut a pattern for the side windows. Have them made from $\frac{3}{16}$ " plexiglass and install with the window side channels painted black. Install the hardware and running lights. •



Pudgy

By Joseph Adams

Pudgy is short in size, but long in quality.

She boasts speed and style for less than \$70.

JJOIN our bearded friend in fun on the water with *Pudgy*, a lightweight 12-foot outboard runabout. Its canvas construction assures both initial and operating economy, since any damage is easily patched and a 5½ hp engine is all that is needed to push *Pudgy* up on a plane. Up to four persons may be aboard without cutting down appreciably on her performance.

Spruce shingle lath is used for this project. By buying it 1x3 inches and ripping into 1x2 inch or 1x1 inch as needed, a substantial savings can be made. The covering material is white untreated duck, which can be bought at reasonable prices from mail order houses. One half sheet of ¼-inch plywood is ample for the transom and gussets. Marine grade fastenings and paint are essential.

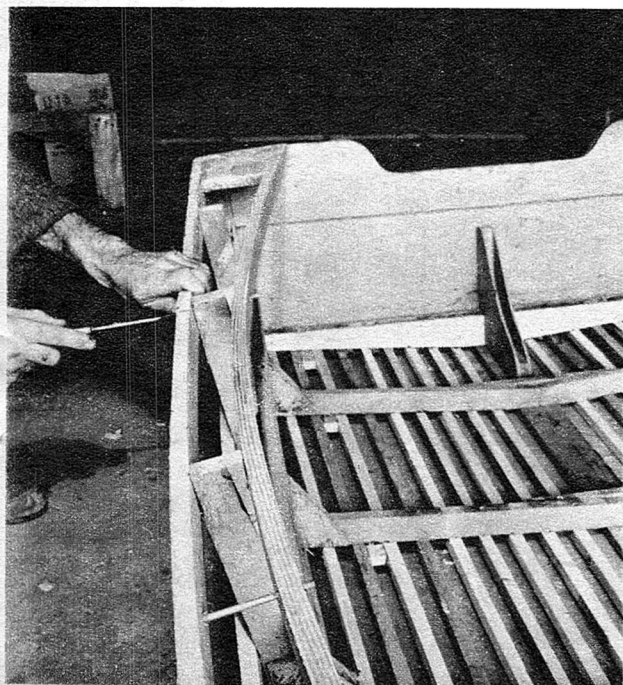
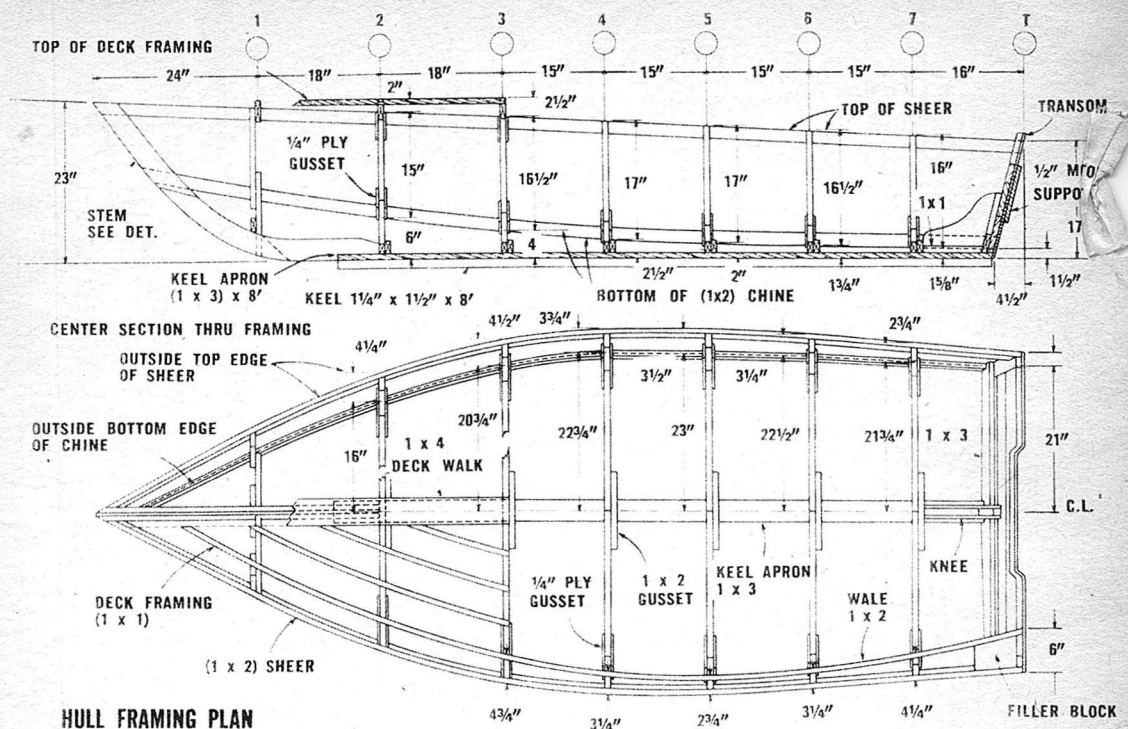
Shape the transom from the plywood and notch out side cleats for battens, sheers and chines. The side cleats can be left extended about a foot or so to be used as supports when the rest of the

frames are being fitted. Attach the cleats with glue and marine fasteners. On the bottom cleat, notch out for every other batten—there are 10 on either side of the keel—the alternate battens will butt against the cleat and will rest on an additional clamp or cleat.

The keel apron is cut to length and attached to the stem on one end and the transom knee and transom at the other. It is a good idea to clamp a 2x3 to the keel apron so that it remains true as the other members are being fitted.

Chines must extend ¾ inch above the frames. No. 8 screws, 1½ in. in length should be used. Glue and nail gussets on frames. There are ten battens that run back to the transom on either side of the keel. These are attached and glued where frames and battens intersect.

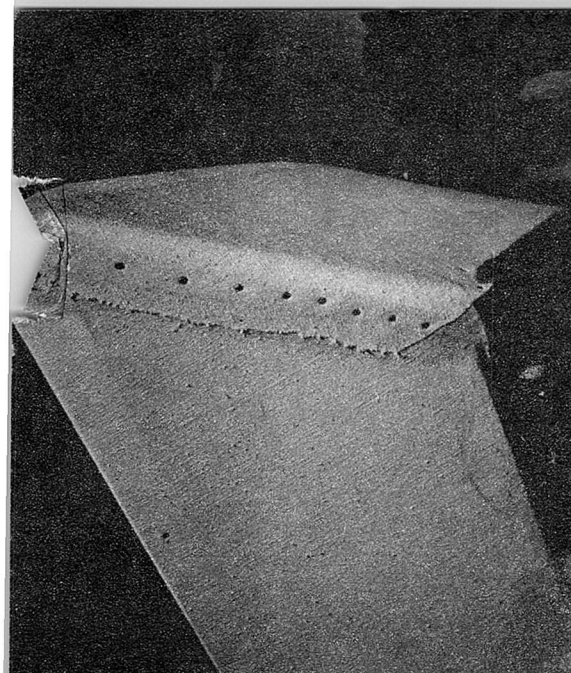
The deck frames are the next section of the boat to be done. Here again the longitudinal members are notched into the last deck frame, No. 3. The center



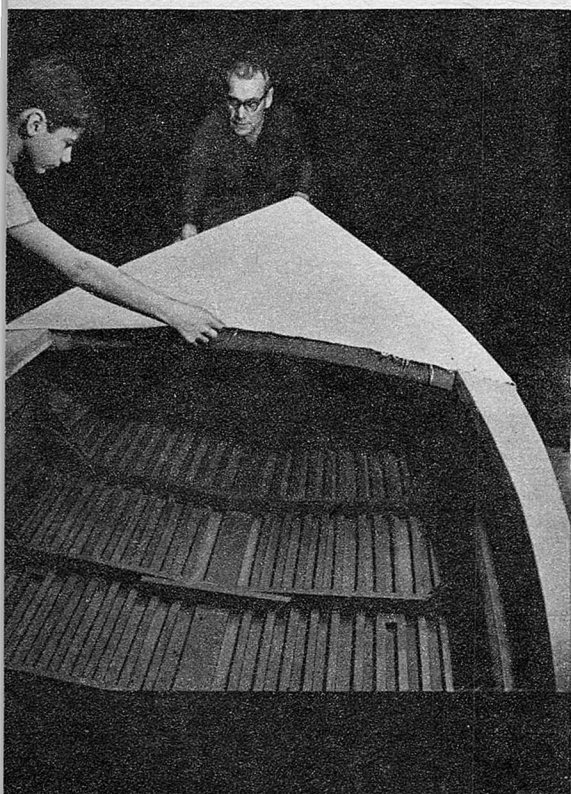
CLAMP on the sheer with four 1/4-inch bolts. Countersink them into the sheer two on each side. This stiffens the boat.



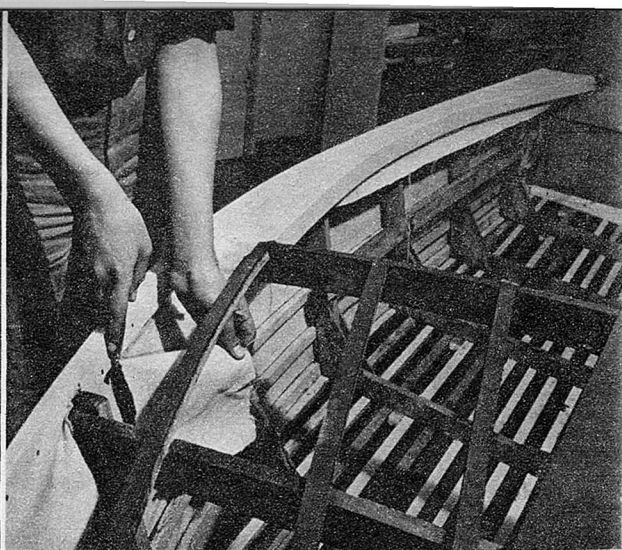
APPLY two coats of marine adhesive to the framing. First apply one coat, allow to set a while and then apply the second.



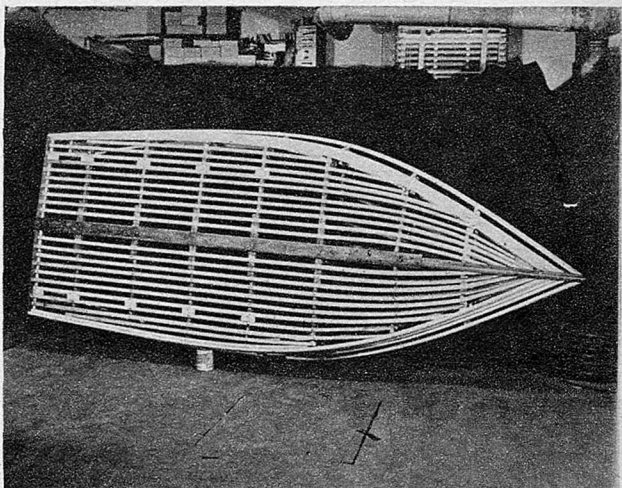
WRAP one of the canvas sidepanels over the stem. Apply adhesive and overlap it with the other piece. Sand the rough edge.



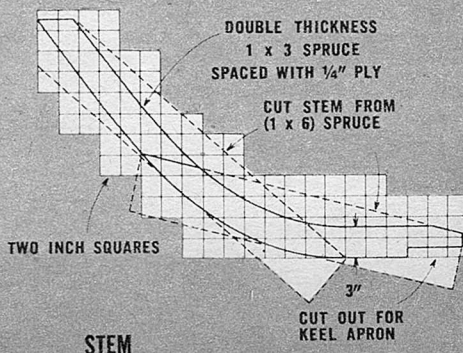
APPLY the deck after the hull has been doped and painted. Deck piece extends to coaming from inside of cockpit No. 4 frame.

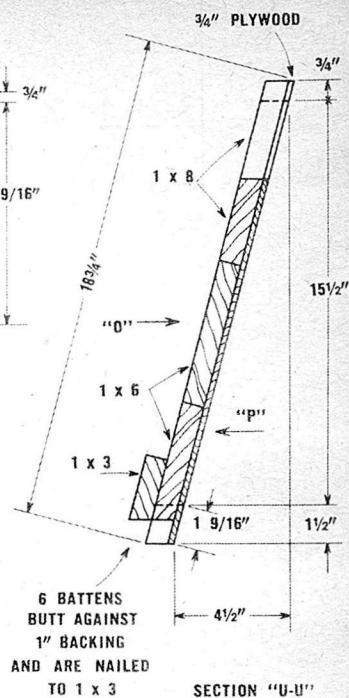
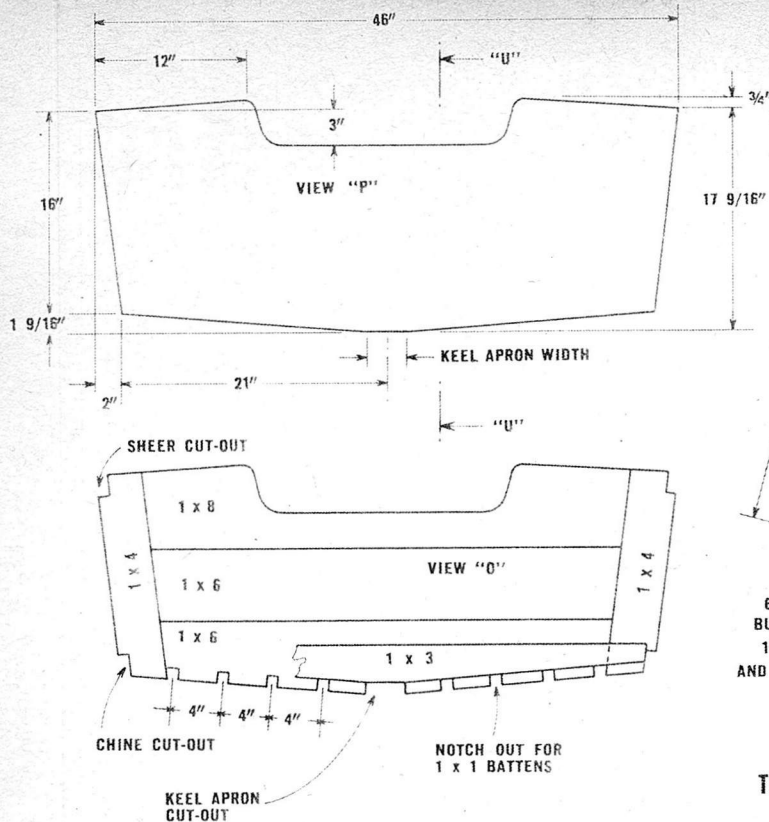


BRING the side canvas up and over the side deck and attach under the gunwales. This creates a smooth, seamless surface.



THIS is Pudgy with the entire framework finished. Before fastening the canvas, check all joints and finish all surfaces.





TRANSOM DETAIL

piece is a 1x4, making it possible to walk out on deck when necessary. Both sides are braced by three battens.

The clamp on the inside of the cockpit is 1x2, reduced to 1x1 where it meets the deck section. All corners and edges are finished and painted to minimize the possibility of tearing canvas material.

Cut a piece of 4x12-ft. untreated duck material into two pieces of two feet in width. These are to be used as the side panels. Apply sealer adhesive with a brush to contact edges of sheet, chines and transom. Stretch the canvas into place and tack it down all around. This is a two man job. First tack it every six inches or so and then when you have it tight everywhere, space the No. 4 copper tacks an inch apart. Check the

photos for proper overlapping procedures. The side and side deck will be of one piece.

The bottom is applied in one piece. Apply adhesive in two or three heavy coats over chines, transom edge and keel apron. Do not attempt to cover the entire bottom at once, however, because the adhesive dries quickly. Proceed a few feet at a time, stretching the material and tacking as you go. When the stem is reached the canvas is cut and overlapped. A heavy coat of adhesive in this area is suggested.

After a day or two, the adhesive will have dried. At this time a thinned coat of clear dope should be applied. Give the inside of the craft two coats of enamel. When the enamel and dope have dried, the deck is attached, bringing a piece of canvas under and around the frame that faces the cockpit.

For finishing *Pudgy*, a coat of brush cement is applied to form a smooth finished surface. Two more coats of paint over the cement finish the job. At this time the trim such as rub rails, etc., should be attached. •

LARGE-SCALE PLANS

are now available for building *Pudgy*. These include additional drawings and complete text. To receive your copy, send \$3 to Mechanix Illustrated, Plans Service, Greenwich, Conn. Please ask for Plan No. B-2-63, *Pudgy*, to order.



Snapper

By Hal Kelly

This snappy hydro-kart is powered with a used 5 hp lawnmower engine.

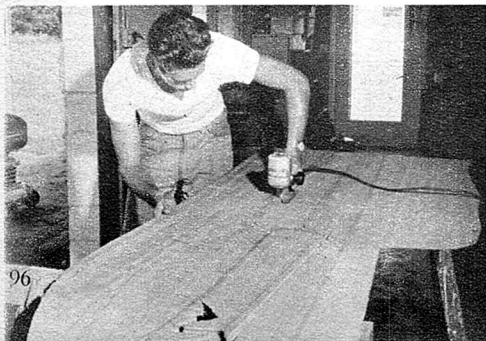
HYDRO-KARTS have taken the boating world by storm, if you'll excuse the expression. They are safer than landlubber karts and they're also a lot more fun. You can sail one all afternoon around most any small body of water on a few quarts of fuel.

Snapper is designed as a low-cost hydro-kart (or aqua-kart, if you prefer). It is easy to build and has a four-cycle air-cooled lawn-mower engine as a power plant. A five-hp engine is ideal. You may be able to pick one up at a

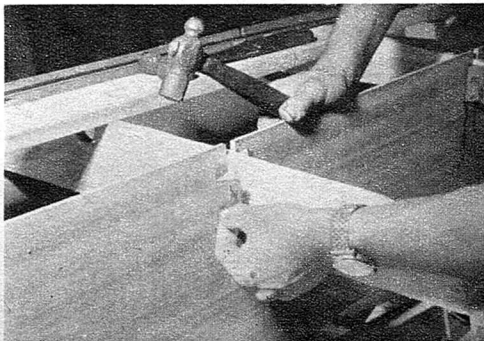
lawnmower shop for about \$20. A new engine will cost about \$75.

This little rig was designed to look like a fish with its mouth open (to gulp down fresh air for the air-cooled motor). To start her, just lift the hood cover, pull the recoil starter, snap the hood closed and away you go. My 8-year-old son has a ball with her. I have no fear for his safety. Snapper is flip-proof and if he should fall off, the safety throttle shuts the motor off. She is literally unsinkable because both side

PLYWOOD girders are nailed together so that both sides can be cut at single pass.



SMALL glue blocks are used to fasten ribs to main girders. Use four to each side.



compartments are sealed. With my 80-pound son aboard, she travels over 25 mph. With a 170-pound grownup she will do better than 20 mph. Planing on top of the water on this small hull gives you the feel of much more speed.

The hull, painted and covered with Fiberglas, will cost under \$50. Time to build this outfit runs a bit over 50 hours. Using the best hardware plus a safety throttle, she will cost you a little over \$100, exclusive of motor—certainly worth the time and money to build. Snapper weighs a bit over 150 pounds, motor and all, light enough to carry on top of your car. A somewhat similar store-bought model will cost around 400 bucks.

Before building Snapper go over the text, photos and drawings a few times. Make a building jig which is nothing more than two 2x4s set parallel to each other with the outside exactly 18 inches apart. They may be fastened to saw horses or any other rig that will give you a good working height.

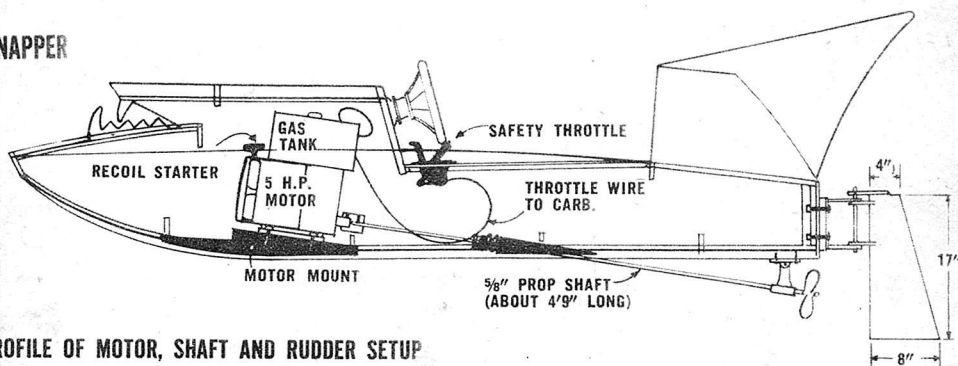
The main girders are first. Draw the shape on quarter-inch plywood and cut

both sides out at the same time. Don't forget the rib notches. One 4x8-ft sheet will do. The waste is used for transom, plywood gussets, fins, etc. Note that a small piece is left at the back of the main girders to facilitate clamping to the jig. This is cut off later.

Ribs: Draw each rib on paper (you really need draw only one-half of each, flipping the pattern for the other end). Draw to full size. Note that the bottom and sides of the transom and ribs Nos. 3 and 4 are the same shape; just the decking is changed. The transom frame is half-inch cedar. Cut all notches before gluing and nailing the transom to the frame. Use No. 16, 3/4-in. Anchorfast nails; in fact, this is the only size nail used in the whole project. After the ribs are finished they are slipped into the notches in the main girders and fastened in place with glue blocks and nails.

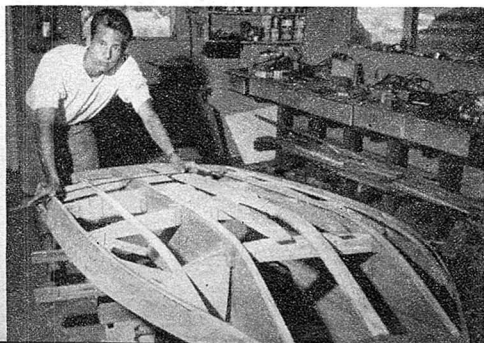
After the transom is in place, sight from the transom to the bow from time to time to make sure each rib lines up with the transom. You might use a level for this but I find the eye is more

SNAPPER

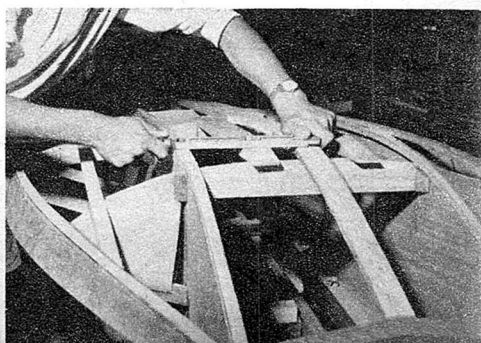


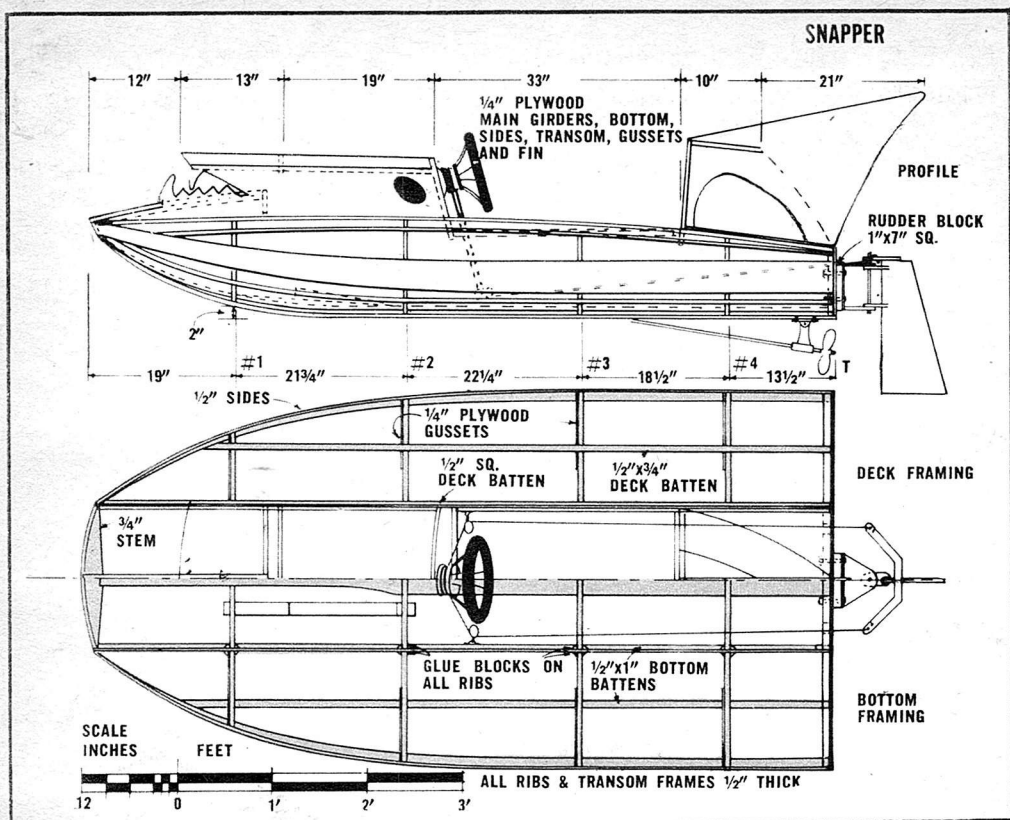
PROFILE OF MOTOR, SHAFT AND RUDDER SETUP

CHECKING the bottom to make certain the planking rests evenly on all the battens.



A PLANING rasp is an ideal tool for fairing job. Note the motor mounts in place.





accurate because the jig or floor may be at a slight angle. The main girders are screwed to the deck beams from the inside. No. 7, 1 1/4-in. screws are used. Only two screw sizes are used, the other size is a No. 7, 3/4-in. All screws are flat head, use only bronze, stainless steel or galvanized screws.

Keel: This is eight feet long, four inches wide and 3/4 inches thick. It is cut to a width of two inches, starting forward of rib No. 2. This two-inch-wide section is cut down the center of its 3/4-in. thickness with a band saw for about 28 inches from the bow. The keel is glued and fastened to the transom and all ribs with No. 7, 1 1/4-inch screws (two screws to each station). Glue is applied to the slit at the bow and the member is bent to shape. Small C-clamps are used to hold the bow section of the keel together until the glue is dried. The bow piece—half-inch thick cedar—is notched for the stem and then cut to shape. The main girders are glued and nailed to the bow piece. Next, the stem is glued and screwed to the notch in the bow piece.

The battens are now glued and fas-

tened in place. The main girders are glued and nailed to the center battens. They also are screwed to all ribs and the transom, as well as to the outside battens. Use No. 7, 1 1/4-in. screws.

The sides are of cedar, half-inch thick. The five-inch width later is faired down to a little under four inches wide. Soak some rags in hot water and place them around the forward section of the sides to help with the bending. Start at the transom. Glue and screw the sides to each rib with two No. 7, 1 1/4-in. screws. Don't forget the motor mount, which is fastened to ribs Nos. 1 and 2. Check the power plant to see whether you have the correct placement for your engine.

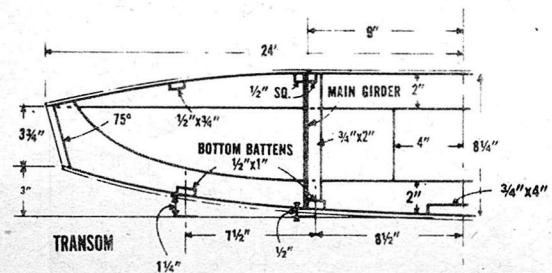
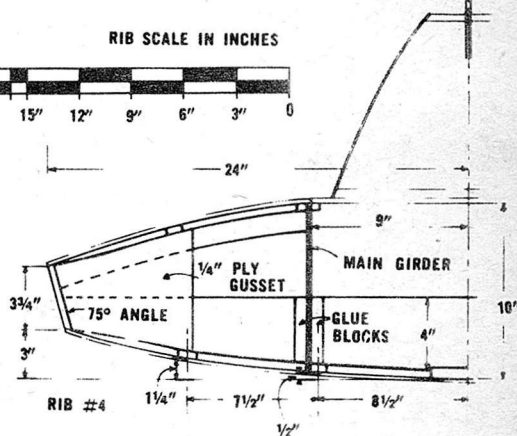
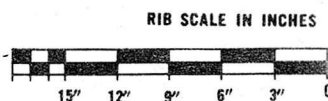
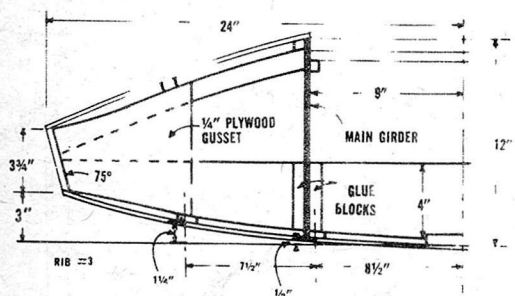
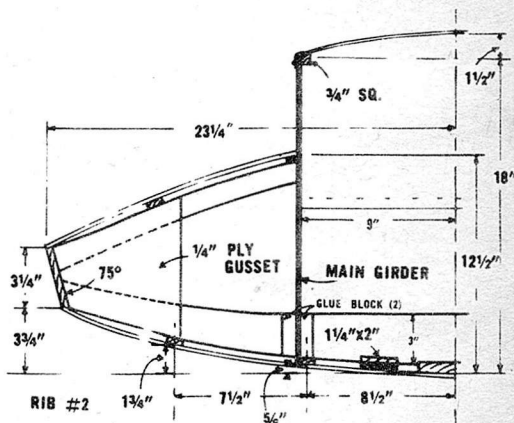
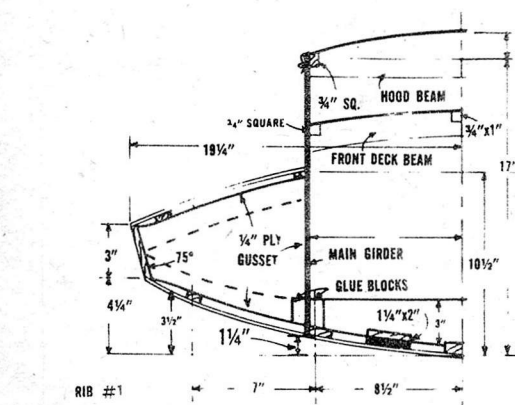
Fairing: This is one phase of building you should not rush. Note that Snapper has a one-piece bottom that is rounded from chine to chine. Use quarter-inch-thick plywood across the bottom. Fair and round the battens and chines a bit so the plywood rests on all of them. Check with a long straightedge to make sure you don't have any hooks or rockers in the bottom, especially in the last four feet. Now rough in a hole for the shaft log.

Planking: The bottom is almost four feet wide, utilizing the full width of the 4x8-ft. plywood.

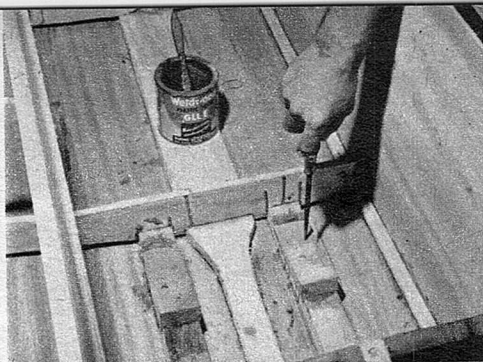
The one-piece bottom is the hardest task in building Snapper. However, it is really more time-consuming than anything else. Use screws for temporary fastening. Cut out a slit from the front up to the center about 30 inches long, fold one side down in place and trim for the cutout at the stem. Make a straight cut in the bottom at the center of the inside batten, about 24 inches long, then fold the outside section in place. Trim off the outside section until it makes a neat butt. This same procedure is used

at the outside batten, also temporarily screwed in place. Do the same for the other side. Mark the shape of the outside of the boat on the underside of the bottom. At the same time mark off, from underneath, where all battens, the transom and the stem touch the bottom. Remove, trim all excess along outside.

Coat all battens, keel, chine, transom and bow pieces with glue. Note that the bottom is *not* fastened to the ribs. Now fasten the bottom in place. Temporary screws or nails will help to line up the bottom. Screws are best. When using nails on the outside battens, get a neighbor to hold a heavy weight under-



Large-size blueprints of Snapper are available. These include extra pictures and a bill of materials. For your copy, send \$5 to Mechanix Illustrated Plans Service, Greenwich, Conn. 06830. And ask for Plan No. 30-64 Snapper.



THE MOTOR mount blocks are set at the appropriate angle and then screwed in place.



BOTTOM has received a coat of resin and cloth. Second resin coat is being applied.

neath the battens so the nails will pull the bottom snugly to the battens.

Now unclamp the hull from the jig and turn her right side up on the jig. Use some old rugs or rags as padding between the bottom and the jig. The deck battens are fastened in place with glue and No. 7 screws. The main girders are now glued and nailed to the inside battens. Fair the deck beams and sides in the same manner as the bottom. Cut off the section on the main girders you used to clamp to the jig. Before fastening the decking in place, add this safety factor: at the bow, forward of rib No. 1 under the decking, use a foam flotation kit made by Glass Plastics Corp. of Linden, N. J. Plug up the space between the rib and the bottom with a rag so this concoction will remain in the area where you want it. Then mix the foam. Use a little at a time if you are in doubt as to how much you will need. The mixture starts to foam almost immediately. If at first you don't fill the area you can always mix some more and add to fill. If it should overflow a bit, the excess can be cut off with a saw. Give the inside of the sealed compartments about three coats of varnish.

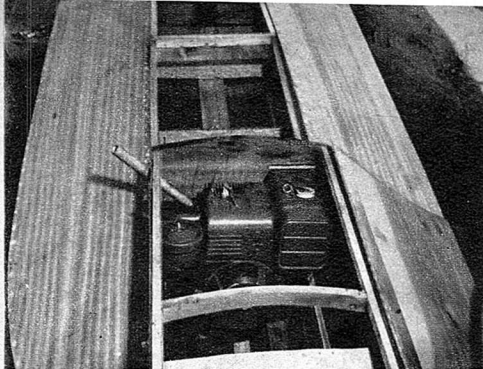
Decking: The quarter-inch-thick plywood is glued and nailed in place. Apply glue to transom, stem, all battens and sides. If you did a good job of fairing, the decking will rest firmly on the center batten.

Now for the finishing touches to the inside. The shaft log has a 12° angle. Thus, the angle blocks that are screwed to the motor beams are at 12° to the flat part of the bottom. They should taper from a sharp edge and be about 12 inches long. The shaft log is fastened

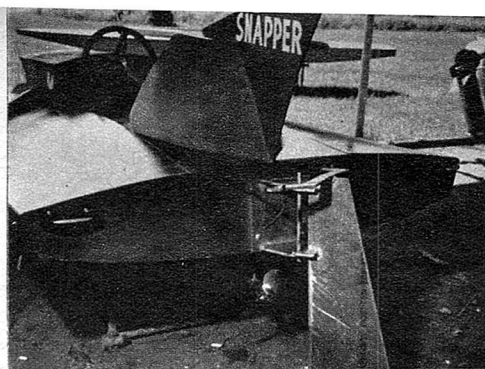
between rib No. 3 and the keel with No. 7, ¾-in. screws. It is a good idea to use a seam compound between the log and the keel. The log and strut have a ⅝-in. hole for a ⅝-in. shaft. At a 12° angle, cut a ⅞-in. hole in the bottom. The hood and deck beams are now fastened in place. Use quarter-inch plywood for the little front deck, hood cover and sides of the back rest, to help keep this little outfit light. For the hood, a piano hinge is screwed to the sides and riveted to the hood cover. Small catches on the other side hold the cover in place.

The back rest with fin is next. This is made up separately and fastened to the quarter-inch plywood. Later the entire unit is fastened to the hull with eight screws. Fasten the footrests in place, using 1¼x3-in. mahogany. Carefully cut to the contour of the deck, glue and screw in place. Screw the main girder to the end of the foot rests, using long screws to the decking.

Fiberglassing: Bottoms up again! Carefully set Snapper at a comfortable working height. The bottom and sides are Fiberglassed right up to the deck. If you Fiberglas the bottom you can eliminate some of this extra cost by using a good grade of exterior plywood instead of the more expensive marine grade. A 50-inch-wide cloth is used and the sides covered with scraps. The procedure is quite simple. The color is added to the resin. When finished, you have the bottom covered with a long-lasting material, plus built-in color, all in one application. The bottom first receives a coat of resin; then the cloth is laid in place. Then more resin is added over the cloth. A paint roller is the ideal tool for this part of the job. After



THE FITTING-OUT operation consists of installing the motor and the separate gas tank.



CLOSE-UP showing rudder construction and installation. Ready for shakedown cruise!

hardening, use a disk sander to grind off all the bumps (especially where the scraps on the sides overlap each other). Cut out and sand around the shaft hole. One more coat of resin is applied with a paint roller and you are finished. Working time is about $2\frac{1}{2}$ hours at $1\frac{1}{4}$ hours each day. It would take you much longer to give the bottom three coats of paint, and paint takes longer to dry. I Fiberglas the bottoms of all my boats. On this little boat I believe it is necessary. I know my children will give Snapper a real workout. Years ago I found you could build things strong enough for grownups—but never for kids. The Fiberglas kit may be bought from Glass Plastics Corp., 1261 West Elizabeth Ave., Linden, N. J. for about \$15.

While the hull is in this position, set up the strut. I used an adjustable strut, which I had to shorten. You will have to grind the bottom flat under this strut for a good snug fit. Make sure you have the shaft straight. You may have to do a bit of trimming on the bottom where the shaft comes out.

With the craft right side up, you are ready for finishing. The inside receives four coats of varnish. The decking, hood, seat, back rest and fin are primed with a coat of white Firzite. After sanding, the seat, hood, foot rests, back rest and fin are painted with two coats of bright red paint. The decking and "teeth" receive two coats of white paint.

Motor: You will find the 18-in. space between the main girders ample for most small four-cycle engines. Spend some time trimming the angle blocks on the motor beams so the motor lines up with the shaft. After the motor is lined

up, bolt it to the angle blocks. On my particular motor the exhaust is at the side. I painted this hole to look like an eye and treated the opposite side similarly. Later I found out it was a good idea just to cut large holes for eyes. The effect is the same. It also permits a good air flow around the motor.

Transom handles are now attached, two to the back and two to the front. The steering wheel is a real racing wheel and so is the safety throttle, which shuts the motor off when released. Racing throttle, steering wheel and lifting handles may be bought from Keller Manufacturing Co., 18340 Ashworth Ave. North, Seattle, Wash. 98133. The rudder is made up of ten-gauge and quarter-inch steel. I had my local welder make it up for me (cost: about \$5, including material and labor). The steering hookup is simple. Just run the cable around the drum a few times and cross through a pulley on each side attached to the rudder. Throttle wire runs from the carburetor, under the seat and over to the throttle.

Get some friends together and build a few of these karts. You can have a ball holding your own races. A small pond is suitable.

You will find that props are most important. I had the end of the shaft of my prop turned down to $\frac{9}{16}$ -in. with a sheer pinhole to match an outboard racing prop.

After much testing and a few props I found that a Michigan 6x6-in. two-blade bronze propeller is about the best type. They cost about \$12.

Once again—study the plans carefully, decide on a method of procedure that suits you best—then get to work. •

Taffy

A gold-plater from stem to stern,
Taffy is a de luxe runabout
for the discriminating sailor.

By Charles M. Ungerbuehler

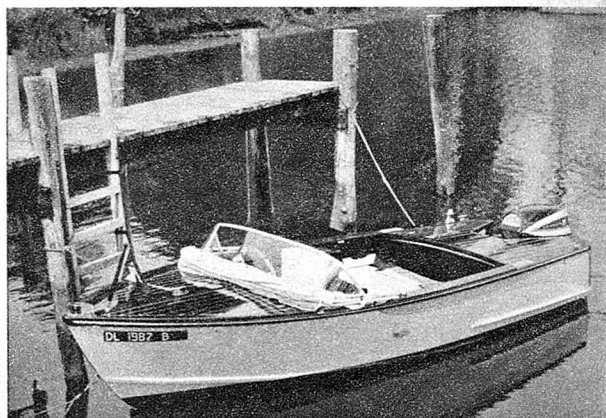


THE keynote of *Taffy* is quality. If you have become disenchanted with boxy, makeshift designs and inferior workmanship, then *Taffy* is for you. This is a boat designed with no short cuts. When finished she will give you the pride of ownership that only true quality provides.

Don't get the idea that this boat is beyond your capabilities. An average well-informed amateur builder who is willing to put in the time and effort will have no trouble with *Taffy*. In no case should anyone attempt this project without first having read one of the better books on the art of boatbuilding. *Boatbuilding*, by H. I. Chapelle and *Boatbuilding in Your Own Backyard* by Sam Rabl are classics in the field.

The object of the specifications is to further explain the drawings and plans. Since every detail of the construction of

WHETHER under power or moored at the dock, *Taffy* displays her classic lines designed for a dry, smooth ride. With a 40-hp engine she cruises at 24 mph without any trace of pound or rattle.



a boat cannot be shown, the discretion of the builder must dictate the use of fastenings and additional parts whenever needed. All fastenings should be of approved quality and the underwater planking fastenings should be of silicon bronze. Brass is suitable for topside planking and other hull and joiner work. Where two materials are listed, the first should have preference. Glue all joints and fitted parts in the hull proper with resorcinal glue except those which are to be stained and finished. Bed all planking in a high grade marine sealer to insure watertight joints and freedom from leakage. All internal parts of the hull should receive a coat of clear "penta" wood preserver before finishing. For the framing material, use wood that is clear, free of knots, and straight grained. Air dried material is preferable. Edge chamfering will add an air of class to the completed hull.

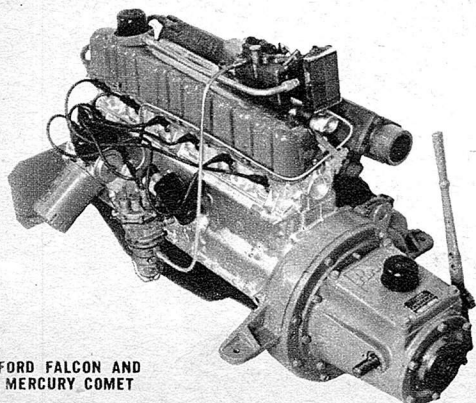
While the specifications will call for a specific type of material at various points, you may alter these types provided the characteristics are the same.

For instance, do not substitute hard, heavy woods where the specs call for soft, light material. Substituting fir plywood for the mahogany specified will result in a false economy; lessening resale value and making the job of finishing much more difficult.

In no instance should the lines or construction of *Taffy* be altered from the plans without risk of ruining the complete job of engineering which has gone into this boat. Seating and interior arrangements may be set up as desired provided no serious changes in the weight distribution of passengers or equipment are made. Always position equipment such as tanks, battery, etc. to keep the boat at normal trim while at rest. Installation of the steering gear depends on selection of a motor and the direction of rotation of the prop. As a general rule, right-hand props will perform better with the wheel mounted on the starboard side since the driver's weight helps offset prop torque. Mount the junction boxes directly beneath the hatch on the forward face of the well

Lehman **ECON-O-POWER**[®] MARINE CONVERSIONS

for FORD • MERCURY • EDSSEL • LINCOLN • JEEP • CHEVROLET V8
STUDEBAKER • FALCON • COMET



FORD FALCON AND
MERCURY COMET

A most complete line of marine conversions from 40 to 400 h.p. for engines dating back to 1928. Sold and serviced throughout the U. S. by authorized ECON-O-POWER dealers. Simple to install—a set of wrenches is the only tool you need. Many exclusive ECON-O-POWER features.

ECON-O-POWER converted engines are seaworthy! They combine power and stamina . . . deliver big boating value at low first cost. You benefit from low upkeep, "exchange" factory service on factory rebuilt parts and accessories, and full marine type reverse gears.

Manufactured and guaranteed by LEHMAN—the first and oldest name in marine conversions, 800 E. Elizabeth Ave., Linden 7, New Jersey.

NEW, 48-Page CATALOG
Mail Coupon Now!

Lehman Manufacturing Co.
800 E. Elizabeth Ave., Linden 7, N. J.

I enclose 25 cents. Please send your new 48-page ECON-O-POWER Conversion catalog. (Please print)

Name

Address

City..... State.....



facing for easy servicing and protection from sea and rain.

For all wiring within the boat other than the motor, No. 16 gauge wire should be used. Follow the manufacturer's specs closely for the installation of all electrical equipment. The wiring should run from the battery through the lighting fixtures in parallel. Since this system is completely isolated from the motor's electrical system, it need not be polarized. If an electric starting motor equipped with generator is used, the internal wiring system installed in the boat may be taken directly from the terminals on the junction box cover. In this case the system is fused and the wiring system should be polarized to agree with the motor system. It is also necessary to establish the polarity of an additional piece of equipment which uses the body of the instrument as a ground.

Stems: Of one-inch, nine-ply African mahogany; faced both sides with $\frac{5}{16}$ -in. five-ply African mahogany plywood. All three pieces to be cut to the dimensions

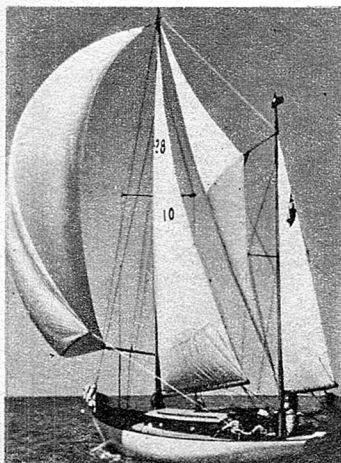
shown in the plans and glued and screwed together to form one solid piece $1\frac{5}{8}$ -in. thick. To be fitted with $\frac{1}{2}$ -in. mahogany cheek pieces as shown, to bolster out the back rabbet and provide ample face for the fastening of the planking. Fasten to the keel batten with two bolts as shown and two No. 10 screws. The entire stem is to be beveled to receive the planking flush at all points. Derive all bevels and facing of stem from the plan of lines. Glue all joints with resorcinal glue.

Keel Batten: White oak or very hard Honduran mahogany; size $\frac{7}{8} \times 4$ in. Laid on the flat, beveled to receive the planking and fastened to each floor timber and frame assembly with three 2-in. No. 10 screws.

Keel: White oak: Size $1\frac{5}{8} \times 1$ in. Tapered forward to fair in with the stem cap. Note that the after end is tapered from frame No. 1 to the transom to provide full water flow to the propeller. Fasten in glue or bedding compound with screws on five-inch centers of a length to provide not less than one-inch

SAILS AND SAILBOAT FITTINGS

**RACE-LITE STAINLESS STEEL
HARDWARE TUPHBLOX
AND W & C FITTINGS**



*Sails for All Sailing Craft and All
Sailing Surfboard & Planing Sailboats
Dacron & Nylon Sails*

OUTBOARD, POWER BOAT SUPPLIES

Below is just a few of the many items we can supply you. Mooring Equipment, Bow Rails, Stoves, Steering Wheels, Steering Kits, Rope & Aluminum Ladders, Searchlights, Power Boat Lights, Electric Sirens, Fog Horns, Bilge Pumps, Compasses, Speedometers, etc. **MARINER'S LIBRARY**—Over ninety books about boats, Navigation, Building, Cruising, etc. Sail Battens. Spruce Spinnaker & Whisker Poles and fittings. Linen-Dacron-Nylon-Samson Yacht Braid & Manila Ropes. Stainless Steel Wire Rope & Accessories. Spliced to your specifications.

Navy Tops, Cockpit Covers, Sail Covers, etc. Canvas Duck from 22" to 120" in width. Turnbuckle Boots & Snap on Cable Covers for all sailboats. (NEW) applies to Turnbuckle Boots & Snap on Cable Covers.

**WINTER BOAT COVERS.... Building or
ICE SKATE & D.N. ICEBOAT Outfitting
SAILS. a Boat?**

See us first.
Discounts
up to 50%
on wood
screws.

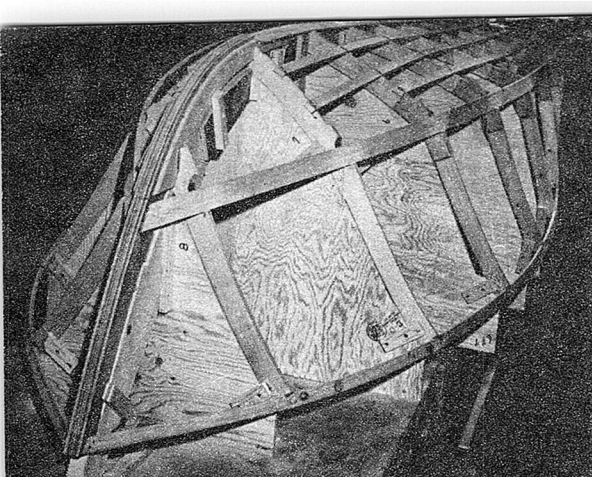
EVERDURE BRONZE STRONGHOLD BOAT NAILS

Stainless steel, brass, bronze, galvanized Machine, Stove, Carriage & Stove Bolts. Wood & Machine screws of S.S.-Bronze-Brass & Chrome plated.

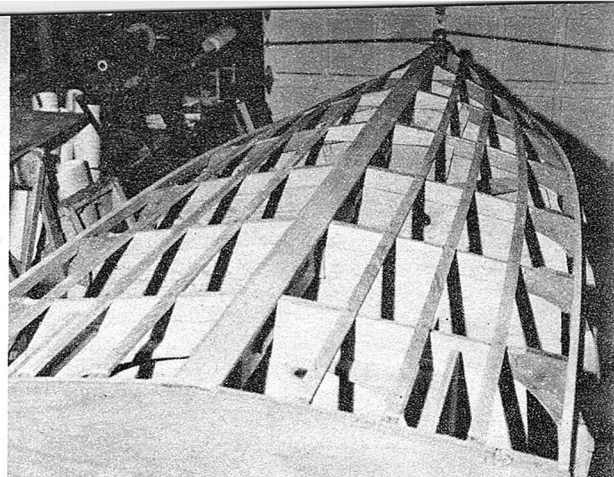
ALAN-CLARKE CO.
Sailmakers-Boat Supplies
BE 3-5908 75 CHAMBERS ST. N.Y.C.

Write for
Winter Prices

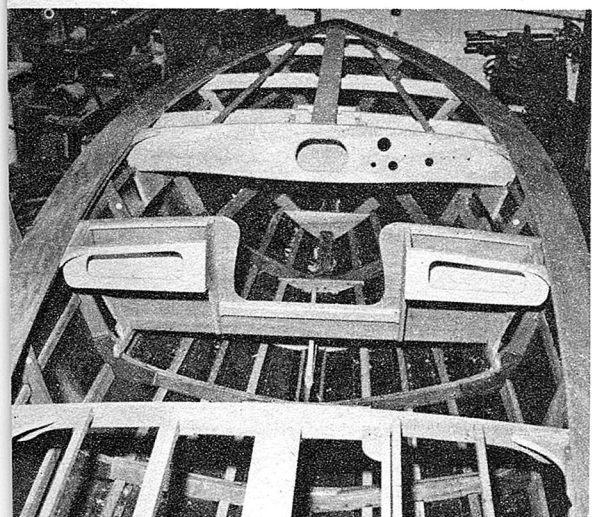
SEND FOR CATALOG F.F.64



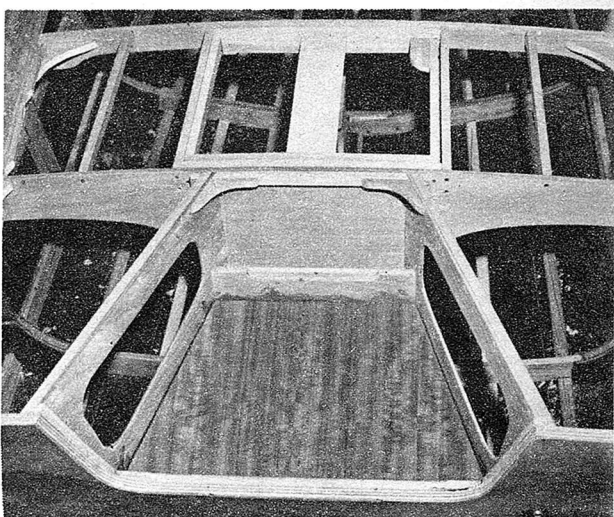
THE FINISHED framework in the jig is now ready for the frames to be beveled and the planking of the hull to be started.



STERN view of the planked hull in the same state of completion as No. 2. Note how framework clears the jig in aft sections.



THE COMPLETELY planked hull is shown here with framing finished, side decks installed and dash and compartments ready.



TRANSOM construction and stern deck shown prior to the laying of the plywood deck. The outboard well is self-bailing.



PLANS AVAILABLE

Large scale plans of Taffy, including extra drawings are available from Mechanix Illustrated Plans Dept., Fawcett Bldg., Greenwich, Conn. Please ask for Plan No. B-5-63, Taffy, when ordering. Cost: \$5.00 a set.

THE HULL has been glazed and primed ready for finish coats. Note the rabbets for the inner decking.

hold in solid wood for a secure grip.

Chines: White oak; $\frac{3}{4} \times 1\frac{1}{4}$ in. To be beveled to receive the planking and fastened at each frame with two $1\frac{3}{4}$ -in. No. 10 screws.

Battens and Stringers: White oak; size $\frac{5}{8} \times 1\frac{1}{4}$ in. Fasten at each point with one, $1\frac{1}{4}$ -in. No. 10 screw. Let into each frame as shown to provide an unbroken fair landing surface for the planking. Note that the topside mid-batten divides the distance from chine to sheer into equal segments at each frame. The next batten in turn divides the distance once again. This is necessary since the shape of the topsides does not allow a single sheet of material to be installed from chine to sheer. The bottom stringers are shown on the construction drawings.

Side Frames: Honduras mahogany or hard Philippine mahogany; of $\frac{3}{4}$ -in. material molded $2\frac{1}{4}$ in. at head and $2\frac{1}{2}$ in. at heel. Frames numbered 1 through 5 have their heads flared to fit the carling.

Bottom Frames: Honduras or hard

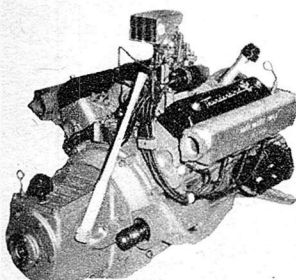
Philippine mahogany; made of $\frac{3}{4}$ -in. material molded straight through to conform with the inner planking shape. Note that the bottom frames have been reduced by $\frac{5}{16}$ in. on the bottom edge so that the planking will not lie against the frames, but will be supported only by chines, keel batten and bottom stringers. The notches for the stringers will need to be beveled in spots, but the lower edge of each bottom frame can be cut square.

Frame Gussets: Scrap planking material shaped as shown for both sides of each frame at the chine. They should be glued and screw fastened with $\frac{3}{4}$ -in. No. 8 screws.

Floor Timbers: White oak, of $\frac{3}{4}$ -in. material shaped as shown for each frame, glued and screw fastened with not less than six, $1\frac{1}{4}$ -in. No. 10 screws. To be molded $2\frac{3}{4}$ in. above the top edge of the keel batten in each frame and in the after frames not less than 18 in. in length. Forward, the lengths may re-

IF YOU KNOW HOW TO TIGHTEN BOLTS . . .

YOU CAN "MAKE YOUR OWN" MARINE ENGINE
AND **SAVE!**



High speed, low cost performance "Thunderbird" with Barr Conversion.

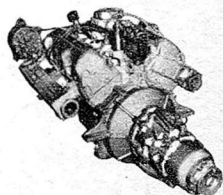
Easy-to-install Barr Conversion Kits just bolt on! . . . make a high-powered auto engine into a dependable marine power plant in 5 to 6 hours.

There's a low-cost Barr conversion kit for every popular American auto engine from 4-cylinder Willys to Cadillac V-8.

Barr Conversions give you—low initial cost, low operating costs, easy availability of parts and service, top power plus compact design. Get more pleasure from your boat with a Barr Conversion.

Send for FREE Catalog and Conversion Hints Manual.

NEW BARR "409"



Complete marine engine built from rugged Chevrolet truck block. 409 cu. in.—runs on regular gas. Complete with Warner "Velvet Drive" reverse or reduction gears.

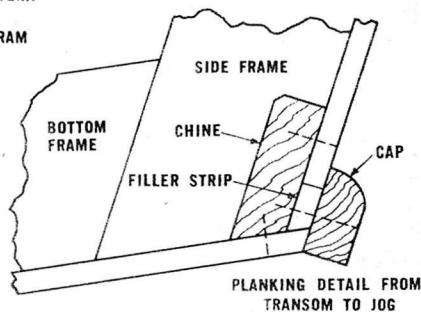
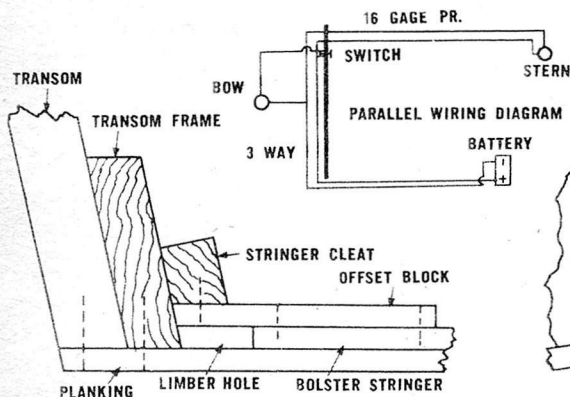
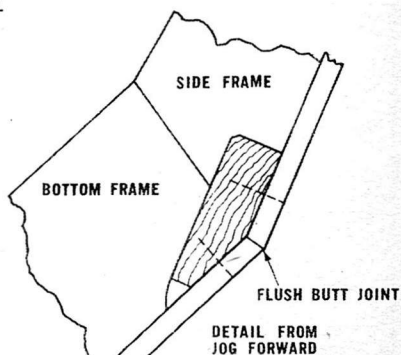
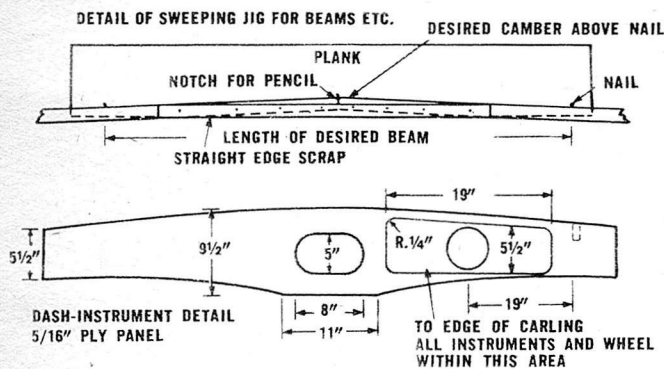


MARINE PRODUCTS COMPANY
2707 E. CASTOR AVE. — PHILA. 34, PA.

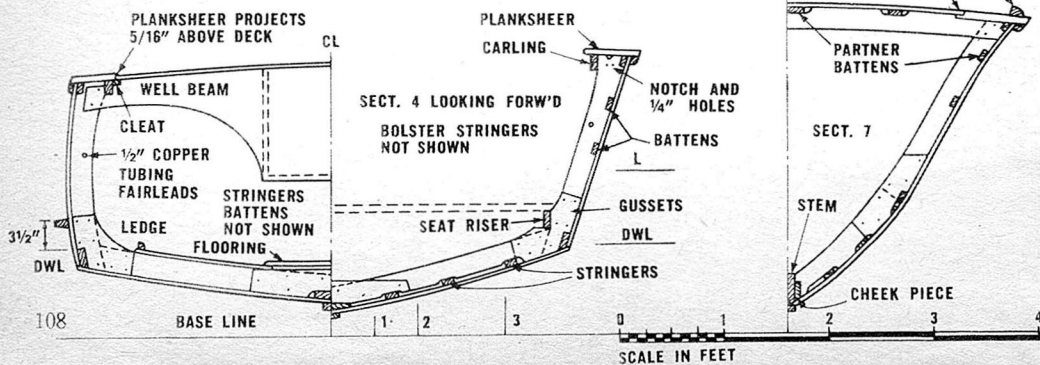
TABLE OF OFFSETS

Station	S	O	1	2	3	4	5	6	7	8	B
Heights above base											
Keel	—	—	0-2-14	Straight			0-1-10	—	—	—	—
Fairbody	—	0-4-4	0-3-14	0-3-8	0-3-1	0-2-11	0-2-6	0-2-3	0-2-15	—	—
Chine	—	0-7-5	0-7-12	0-8-4	0-8-13	0-9-10	0-10-13	1-0-6	1-2-9	1-5-1	—
Sheer	2-5-1	2-5-3	2-5-13	2-6-8	2-7-5	2-8-3	2-9-4	2-10-6	2-11-9	3-0-13	3-2-1
Buttock No. 1	—	0-4-9	0-4-5	0-4-0	0-3-11	0-3-6	0-3-3	0-3-8	0-5-9	—	—
Buttock No. 2	—	0-5-0	0-4-14	0-4-12	0-4-8	0-4-6	0-4-9	0-5-12	0-10-2	—	—
Buttock No. 3	—	0-6-1	0-6-3	0-6-6	0-6-9	0-7-2	0-8-8	1-0-3	—	—	—
Widths from Center Line											
Chine	—	2-4-14	2-5-1	2-5-2	2-4-11	2-3-6	2-0-10	1-8-3	1-1-8	0-4-7	—
D.W.L.	—	2-5-6	2-5-10	2-5-9	2-5-1	2-3-7	1-10-15	1-4-14	0-9-13	—	—
L No. 1	—	2-5-3	2-6-8	2-7-4	2-7-4	2-6-2	2-3-9	1-10-13	1-3-7	0-4-14	—
L No. 2	—	2-3-11	2-6-0	2-7-12	2-8-15	2-8-13	2-7-2	2-3-1	1-7-14	0-8-13	—
L No. 3	—	—	—	—	—	—	—	2-8-5	2-1-8	1-1-14	—
Sheer	2-2-3	2-2-11	2-5-4	2-7-12	2-9-11	2-10-14	2-10-14	2-8-11	2-3-1	1-4-4	—

DETAIL OF SWEEPING JIG FOR BEAMS ETC.



SECTIONS 1-4-7



duce due to the angle of the bottom. There are no floor timbers at frames No. 7 and No. 8, as these will be fitted with suitable gussets after the hull is righted.

Deck Beams: These must be cut to a radius that will allow the designated rise in each given length. Do not cut all beams from the same radii. Hard mahogany size $\frac{3}{4} \times 2\frac{1}{2}$ in. is used. The bottom edge will be cut to conform with the top camber. Fasten to head of each frame with two, $1\frac{1}{4}$ -in. No. 8 screws with all joints glued. They are to be notched out to receive deck partner and deck battens. Note that the dashboard is not notched for partner and battens, but is fitted with blocks to support these members. Otherwise the ends of the partner and battens will be visible under the overlapping decking. Note that the outboard ends of the forward deck beams are cut to receive the $\frac{5}{8}$ -in. planksheers flush with the $\frac{5}{16}$ -in. decking. In the after deck the beams are cut to a single line along the upper edge in order to allow the planksheers to project $\frac{5}{16}$ in. above the plywood decking.

Consult the drawings for clarification of this detail.

Carling: Carling is the first grade mahogany since it is a finish member. The size is $\frac{3}{4} \times 1\frac{3}{4}$ in. Screw fasten to the head of each frame with two $1\frac{1}{4}$ -in. No. 8 screws and fit to dashboard with block located as shown.

Deck Partner: Hard mahogany size $\frac{5}{8} \times 4$ in. is used. Screw fasten into each beam with two, $1\frac{1}{2}$ -in. No. 8 screws. To be fitted at forward end with a $\frac{3}{4}$ -in. breast hook shaped as shown.

Deck Battens: These are of same material and fastenings as side battens.

Transom: Made of either 1-in. African mahogany marine plywood or 1-in. virgin Honduras mahogany. If virgin material is used it will be necessary to joint the material transversely three inches below the motor cutout upper surface. The joint should be provided with $\frac{1}{4} \times 1$ -in. feather set in glue. Fasten a $\frac{3}{4} \times 7$ -in. brace transversely on the transom with the fastening driven from inside. The transom should also be fitted with a 1x2-in. header installed after the boat

WATERPROOFING MIRACLE

Revolutionary Test-Tube Development Makes Ordinary "Paint" old-fashioned! Cuts maintenance costs to 80%



New Fabulous

WATERTIGHT

LIQUID PLASTIC COATINGS for ENTIRE BOAT

LOW FACTORY PRICES

Only \$17.50 per gal. Quart only \$4.95 ea. Postpaid. Money back guar. Send check or M.O. "Beware" of cheap imitations.

Write today for your FREE literature & color chart!

Now, modern plastic chemistry offers you the best watertight, weatherproof and elastic finish yet produced. Applied like paint . . . brush it, spray it, or roll it. Forms a tough skin that will not crack, peel or chip in 250° heat or -50° cold. Even a wallop will dent rather than shatter it. Cuts refinishing costs to 80%. Goes over old paints normally. Never needs removal. Used by U.S. Navy and Army, thousands of delighted yachtsmen, boat owners, factories, etc. ORDER TODAY! Glistening plastic and brilliant white, green, red, gray, blue and black. Nothing comparable at any price.

WRITE FOR FREE LITERATURE & COLOR CHART TODAY

SAV-COTE CHEMICAL LABS, INC., P.O. Box 2128-FA, Alexandria, Va. On West Coast write: SAV-COTE OF CALIF., P.O. Box 78562, Los Angeles, Calif.

Please send complete information <input type="checkbox"/>	FA
Enclosed is \$	
Please ship the following: (Indicate Quality & Color)	
QTS.	
GALS.	
NAME	
ADDRESS	
CITY	STATE

The How-to Book of CARPENTRY

Tips to give
your home
projects
a real

"professional" look

- Furniture • Cabinetry • Framing •
- Paneling • Built-ins •

& Hand and Power Tools You Should Own

FB#549 THE HOW-TO BOOK OF CARPENTRY—75¢
On sale now at your favorite newsstand, or order
direct from Fawcett Publications, Inc., Greenwich,
Conn. Include 10¢ for postage and handling. No
Canadian orders.



PLANS — PATTERNS — FRAMES 7 to 42 ft.

Plans, \$1.00 & Up Choice & Variety

OUTBOARD — INBOARD

180 Powerboat Plans — 40 Sailboat Plans

Powerboat Plans, Kits Catalogs \$1.00
or condensed

Powerboat Plans, Kits Catalog .60

Sailboat Plans & Kits Catalog .40

Send for Trailer Brochure
Marine Hardware Catalog .25
Specify Power or Sail

Sails for One Design Yachts
Send for Price List



Marinecraft
BOX 161-T
BRIGHTON, MASS.

has been righted for ease in working.

Chine Cap: Use white oak or mahogany, size $\frac{5}{8} \times 1\frac{1}{4}$ in. Fasten with $1\frac{1}{4}$ -in. No. 8 screws spaced not over five inches apart. They should be neatly rounded on the upper edge and well bedded in marine sealer or glue.

Sheer Molding: Made of hard mahogany, size $\frac{5}{8} \times 1$ in. To be fitted and planed flush before planksheers are fitted and fastened at close intervals with $1\frac{1}{4}$ -in. No. 8 screws. The under side of these members should be rounded to blend in with the corner rounding of the planksheers. Sufficient flat surface will be left on the sides for the installation of $\frac{5}{8}$ -in. metal sheer molding.

Planksheers: Use $\frac{5}{8}$ -in. mahogany. Like all forward decking, the planks will be provided with a protruding $1 \times \frac{5}{16}$ -in. rabbet. Corner round the inner edges of the planks. Fasten to beams, carling and sheer batten with $\frac{7}{8}$ -in. No. 8 screws on not over six-inch centers. ALL fastenings in this member should be counter-bored and plugged with mahogany plugs set in Weldwood glue.

Planking and Decking: Preferably of first grade five-ply, $\frac{5}{16}$ -in. African mahogany marine plywood trade-marked *Utile*. While other types and grades are available, few have the strength and durability of this material when used in boat construction. Fastenings are as follows:

Into side frames, $\frac{7}{8}$ -in. No. 8 screws spaced not over four inches apart. Main bottom stringers, same fastenings in bronze, spaced not over three inches apart. For the bolster stringers, $\frac{1}{2}$ -in. No. 6 screws driven from inside after boat is righted and using not less than six fastenings per bay. Chines and keel batten, 1-in. No. 8 screws spaced two inches apart. The stem, same as above but spaced slightly closer at the turn of the foot. The transom proper, if fashioned of plywood, $1\frac{1}{4}$ -in. No. 6 screws spaced not over two inches apart on the bottom and sides. The transom frame, 1-in. No. 8 screws spaced not over two inches for both bottom and sides. As previously mentioned it is preferred that all bottom fastenings be of silicon bronze. Note that employing a transom cleat for the battens allows a double

row of fastenings to be used without any skips on the bottom of the transom.

Flooring: Can be either $\frac{3}{8}$ -in. plywood or $\frac{5}{8}$ -in. Sitka spruce laid out to be removed easily.

Seats: Clear soft mahogany $\frac{3}{4}$ -in. thick. To be laid out and fastened as desired. It is suggested that all fastenings be oval head chrome plated screws of sufficient size, fitted with chrome washers.

Seat Backs: Same as seats or $\frac{5}{8}$ -in. mahogany marine plywood.

Well Facing: Of $\frac{3}{4}$ -in. soft mahogany shaped and fitted as shown, making the end of the well and the deck beam in one unit.

Special Notes: Note the frames No. 1-2-3 are set on the aft side of the station line. All others are set on the forward side. The top edge of the motor cutout is exactly 15 inches vertically above the fairbody. This is a standard measurement for stock motors.

The stem cap faces out to $\frac{1}{2}$ -in. width to allow for placement of the metal stem band. To arrive at the proper bevels of the stem proper all fore and aft lines must be carried out in detail to show proper placement of cheek pieces and bearding line. Check when finished to make sure proper allowance has been provided for fastening the planking without the screws protruding into the interior of the boat in the upper part of the stem. The cap should provide an exact continuation of the line of planking all the way down to the waterline for proper appearance. If the face of the cap narrows down to less than the correct measurement, it will be necessary to plane back to the original width without distorting the natural curve of the finished piece. Note that the cap does not remain of equal thickness all the way around. The final transom shape must be derived from a full-sized projection of the transom as shown on the lines drawing.

Bedding or Sealing Compounds: It is recommended that 800 sealer be used on all underwater planking joints. Note, this material is only one of many sealing compounds available; the builder can use his own preference.

Plugging Compounds: Use either the

BOAT LUMBER

For Fine Boat Building and Repairs

SITKA SPRUCE MAST & SPAR GRADE

PHILIPPINE MAHOGANY

HONDURAS MAHOGANY

WESTERN RED CEDAR

WHITE CEDAR

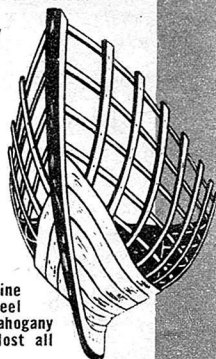
OAK · TEAK · CYPRESS

LONG LEAF YELLOW

PINE · ETC.

Fir and Mahogany Plywood for marine use—lengths up to 16 feet: Bruynzeel Marine Plywood, solid Regina Mahogany throughout. Quality unsurpassed. Most all sizes in stock.

Ripping and planing to order.



We are specialists in all types and sizes of imported and domestic boat lumbers. We ship anywhere—at surprisingly low prices. Send 10¢ today for valuable manual: "How to Select the Right Boat Lumber" plus complete lumber and price list.

M. L. CONDON CO.

Boat Lumber Specialists Since 1912

246 Ferris Avenue, White Plains, N. Y. • WHITE PLAINS 6-4111



MORE FOR YOUR Money...

Converted Inboard Marine Engines

Your "Best Buys"

by STOKES



OUTSTANDING VALUE...

Price—only: **\$995.00**

**Complete New Package:
101 HP VALIANT 6
& MUNCIE MGW**

Brand new Chrysler Valiant 6 engine fully marine converted—combined with new Muncie MGW Flexi-drive—making an inboard-outboard unit with proven performance at an unbeatable low price. Also: Ford V-4 & Falcon 6 with MGW out-drive; plus many Bob-Tail engines.

LOOK AT THESE REAL BARGAINS:

61 HP Willys Jeep 4: \$450 rebuilt or \$600 new—126 HP Wasp 6: \$550—101 HP Chrysler Valiant 6: \$495—85 HP Studebaker Champion: \$450—Ford Falcon 6: \$695—Pontiac V-8: \$770—100 HP Ford V-8: \$500—Studebaker 180 HP V-8: \$750—275 HP Packard V-8: \$945. Also—Dodge, Chevrolet, Plymouth, Olds, Chrysler, Hudson Hornet, etc.

CONVERSION KITS—Big selection of kits to convert many popular engines for marine use. All new components—complete—nothing else to buy! Priced low. Also—reverse gears!

SAVE Stokes saves you money on fittings, reverse gears, hardware, supplies and equipment of all kinds. Big stock of used and rebuilt engines, 2 to 550 HP. Also diesels. **NOTE: We also BUY used engines of all types!**

BIG FREE CATALOG

Send for copy today!
Write Dept. K-64

Stokes Marine Supply Co. Coldwater, Mich.

epoxy or glass fiber type for all underwater fastenings so that there will be no loosening of screw surfacing. In the upper sections of the hull, particularly those areas which will be finished in the natural wood, the acetate wood compounds such as *Famowood* or *Duratite* are recommended since these can be obtained in mahogany color and accept stain nicely.

Preservatives: It is recommended that the entire interior of the hull receive at least one complete coat of natural wood preserver prior to any other surfacing. A suggested way of treating the bottom planking is as follows: After each bottom plank has been roughly cut out with any factory scarphs facing sternward, sand lightly and apply a coat of clear preserver. When dry, follow this with one coat of clear plywood sealer. When this is dry follow with a thin coat of the desired shade of marine paint and apply the planks to the boat as soon as the surface will permit. This treatment provides a very attractive appearance to the interior of the boat and will allow the remainder to be finished in natural varnish, without having to paint frames, stringers, etc. The painted surface of the planking will prevent any darkening of the wood from long exposure to any bilge water which might be allowed to remain in the boat. If you wish, the bolster stringers can be treated in same manner.

Wood Sealers: The entire hull when finished and sanded should receive not less than one coat of clear plywood sealer. One coat of this material should also be used on the wood after any filler-stain is applied. This effectively reduces the possibility of hair-line grain raising from the elements and will greatly improve the durability of the varnished finish. After a thorough sanding, the wood pores should be well filled and ready for a coat of primer of the desired shade. The bottom should be painted with either a good brand of antifouling paint or, if it is only to be used on a trailer, one of the hard racing bottom paints. Use no less than two coats. The topsides should receive two finish coats of marine topside paint after priming, lightly sanded between coats.

Decks and trim and all other varnished surfaces should be filled and stained with the desired shade. This should be followed by three coats of marine varnish when dry, each coat to be lightly wet sanded prior to the final coat.

Trim, etc.: The sheer is trimmed with $\frac{5}{8}$ -in. half oval aluminum molding. Stem cap is faced with $\frac{1}{2}$ -in. half oval stainless steel or aluminum. The sprat rails are finished with the same material as the stem. The aft ends of the planking are faced off with $1\frac{1}{4}$ -in. binding. The port side is fitted with a $1\frac{1}{4}$ -in. piano hinge as shown. Scuppers in the transom well are $\frac{3}{4}$ -in. copper tubing driven flush into both surfaces.

Equipment: The deck camber will allow the installation of a standard 15- or 17-inch plastic windshield to be fitted where shown, and preferably equipped with a mahogany knee in the center for stiffness and durability. A $1\frac{1}{4}$ -in. brass and neoprene bilge pump may be effectively mounted on the underside of the well in brackets to be available for operation directly through the open hatch. This unit will not interfere with either the installation of a junction box nor the gas tanks since the handle knob can be set flush with the well facing allowing ample room for travel above the tops of either standard six-gallon tanks or a permanent 12-gallon tank. If this unit is installed, it should be piped with neoprene hose to the lowest corner next to the transom fitted with an intake screen, and piped out the transom through a brass nipple installed in the transom proper.

The dimension shown in the detail drawings will allow ample clearance for a standard 15-in. steering wheel. An approved fire extinguisher can be mounted directly beneath the center deck compartments on either side, by mounting a two-inch mahogany plate from chine to midbatten. This places this necessary piece of equipment well out of the way of damage, yet it is immediately available in the event of an emergency.

It is recommended that both the battery and the fire extinguisher be mounted on the side opposite the installation of the steering equipment in order to keep the boat balanced. •

from ROCKETS to ROCKING CHAIRS

*Best Selling
Fawcett Books*

HANDY MAN'S HOME PROJECTS • Vacation cabins; kitchen cabinets; furniture; toys; room dividers. (No. 562)

HOW-TO BOOK OF SKIN AND SCUBA DIVING • Basic equipment; rules; aquatic life. (No. 561)

ELECTRONICS HANDBOOK NO. 3 • Practical and fun electronic projects for novice or expert. (No. 560)

T. H. EVERETT'S GARDENING HANDBOOK • Here are helps for soils, lawns, flowers, shrubs. (No. 559)

HOW-TO BOOK OF CONCRETE AND MASONRY • Mixing and pouring; walls, patios, steps. (No. 558)

GARY PLAYER'S SECRETS • Photos, how-to illustrations from a major golf pro, Gary Player. (No. 557)

THE HOW TO BOOK OF PLUMBING AND HEATING • Add a laundry room, change an oil burner, etc. (No. 556)

BOATING IDEAS • Expert Hank Bowman gives hundreds of maintenance, operating and storage tips. (No. 555)

COIN COLLECTING FOR FUN AND PROFIT • The Coin World staff writes on condition, prices, etc. (No. 554)

ANTIQUE GUNS • History, Muskets, Rifles, Pistols, Derringers, Pepperboxes, Percussion Revolvers. (No. 553)

THE HOW-TO-BOOK OF ELECTRICAL REPAIRS • Take car or outlets, motors and appliances. (No. 552)

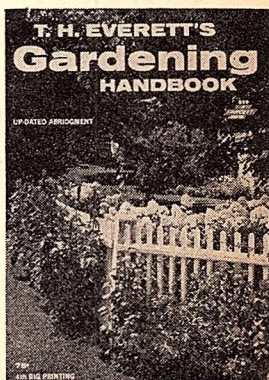
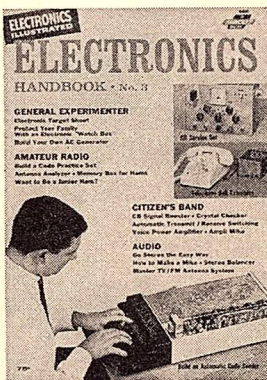
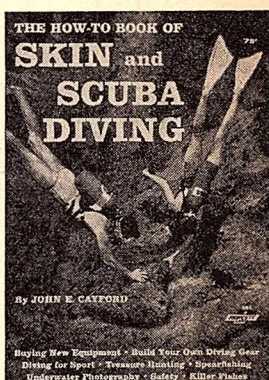
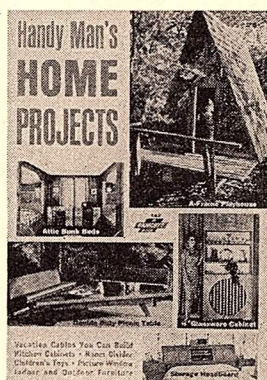
STEREO HI-FI HANDBOOK, NO. 3 • Tape Recorders, Tuners, Amplifiers, Loudspeakers, Records, etc. (No. 551)

HOW TO REFINISH FURNITURE • Refinishing tips to give your home that top professional look. (No. 550)

MECHANIX ILLUSTRATED-HOW TO BOOK OF CARPENTRY • Tips, techniques, cabinetry joints. (No. 549)

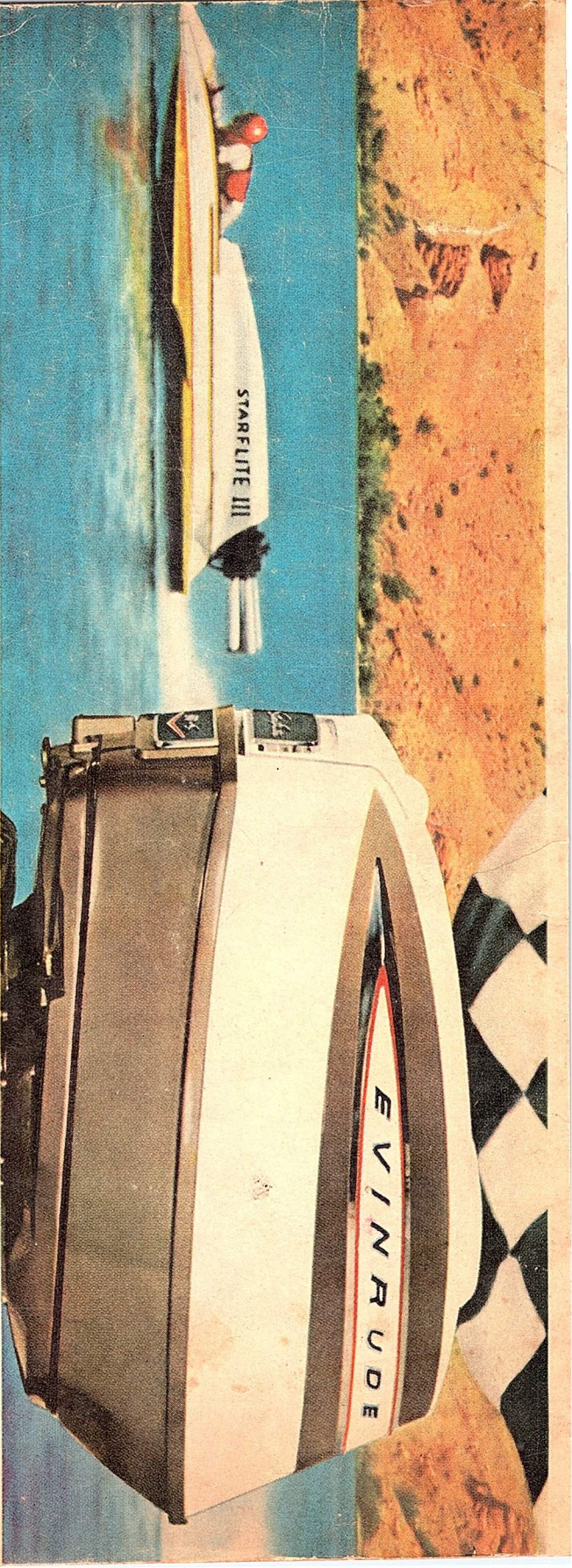
BEST ELECTRONIC PROJECTS FROM EI • CB sideband adaptor, one transistor radio, projects galore. (No. 548)

EARLY AMERICAN FURNITURE YOU CAN BUILD • Reproduce decorative country-style furniture. (No. 547)



AT YOUR LOCAL NEWSSTAND,
LEADING DRUG STORE, SUPER MARKET,
OR WHEREVER MAGAZINES ARE SOLD.

To order, send 75c per copy for regular edition or \$2.50 per copy for De Luxe edition to: FAWCETT BOOKS, Greenwich, Conn. Add 10c per copy mailing charge. Specify books by title and number.



122.9 mph economy run

Evinrude's Starflite 90-S grew out of a racing theory... into the most efficient outboard motor ever built.

The dramatic test came on September 16, 1960.

Hu Entrop drove his hydro, powered with an Evinrude V-4 to a new world's speed record, 122.9 mph! The record still stands.

So does the theory.

It proved that high torque could be turned into speed better than high rpm's. It also proved that a new Evinrude fuel induction system could produce more power per cubic inch. Best of all, it did it with exceptional fuel economy.

Those refinements were translated into the Starflite 90-S. It's the first outboard ever built with a completely separate and sealed fueling system for each cylinder. It develops more power on less gas than any other outboard. And uses half as much oil.

If you'd like to get a refund for every mile you run... if you like the feel of trigger-quick response... if you like silk-smooth acceleration from purring idle to full throttle... then you ought to see the 90-S at your Evinrude dealer now (he's listed in the Yellow Pages).

Catalog free. Write Evinrude Motors, 4306 N. 27th Street, Milwaukee, Wisconsin 53216.

STARFLITE 90-S^{by} EVINRUDE